ALBERTA TRAFFIC COLLISION STATISTICS

1987

Alberta

ALBERTA

TRAFFIC COLLISION STATISTICS

1987

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1987
OVERVIEW

- The number of traffic **fatalities decreased 2.5%** over the past year from 523 deaths in 1986 to 510 deaths in 1987.

- The number of **traffic injuries decreased 10.6%** over the past year from 22,148 injuries in 1986 to 19,809 injuries in 1987.

- The number of **traffic collisions increased 0.3%** over the past year from 97,185 collisions in 1986 to 97,493 collisions in 1987.

- **Casualty collisions** occurred most frequently during **May, June, and August.**

- **Friday** was the most collision-prone day of the week.

- The most collision-prone period of time was the **afternoon rush-hour.**

- **Fatal collisions** occurred most frequently in **rural areas,** whereas **injury and property damage only collisions** occurred more frequently in **urban areas.**

- **Casualty rates** were highest for persons between the **ages of 15 and 24.**

- **Male drivers** between the **ages of 16 and 19** were most likely to be involved in traffic collisions.

- **Driver error** was cited in **54.4%** of casualty collisions.

- **26.6% of drivers** involved in **fatal crashes had consumed alcohol prior to the crash** compared to **12.2% of drivers in injury crashes.**

- Approximately **51.4%** of occupant casualties were <u>not</u> wearing a **seatbelt** at the time of the crash.

PREFACE

The purpose of this report is to provide an overview of the "who", "what", "when", "where", "why", and "how" of traffic collisions which occurred in Alberta during 1987. Although the report is general in nature, it pays particular attention to casualty collisions, that is, those collisions which resulted in death or injury. Since 1984, limited information is collected for crashes involving only property damage.

Legislation in Alberta requires that a traffic collision, which results in either death, injury or property damage to an apparent extent of $500.00 or more, be reported immediately to an authorized peace officer. The officer completes a standardized collision report form which provides information on various aspects of the traffic collision. This report is based on the data collected from these report forms.

The collision report form is issued with standard instructions to every police force within Alberta, to be completed by the officer attending the scene of a motor vehicle crash. Police priorities at the scene of a crash are to care for the injured, protect the motoring public and clear the roadway. Completion of the collision report form is a secondary, but necessary task.

After completion, the information on the collision report form is coded for input to computer files. The Provincial Traffic Crash Information System, which has been operational since 1978, undergoes several manual and computerized inspections each year in order to ensure maximum accuracy of the final data output.

Due to continuing police investigation, some numbers presented in this report may be subject to revision. It should also be noted that not all percentage columns will total 100 due to rounding error. However, the patterns and trends detailed in this report represent an accurate description of Alberta's traffic collision picture.

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Glossary

Alcohol Impaired	-	In the judgement of the police officer, driving ability was impaired by alcohol consumption. Whether or not the subject was actually charged is not taken into consideration for the purpose of this report.
Casualty Collision	-	A vehicle collision which results in either a fatality or personal injury.
Drinking Driver	-	Refers to those drivers judged by the police officer, as having been drinking prior to the crash or as being alcohol impaired at the time of the crash. Whether or not the driver was actually charged is not taken into consideration by the collision report form.
Fatality	-	A person who dies as a result of a vehicle collision within 30 days of the collision.
Had Been Drinking	-	In the judgement of the police officer, the driver had recently consumed alcohol but his driving ability was not obviously impaired.
Major Injury	-	Persons with injuries or complaint of pain who went to the hospital and were subsequently admitted.
Minor Injury	-	Persons with injuries or complaint of pain who sought medical attention but were not admitted to hospital.
Motorcyclist	-	Refers to drivers and passengers of motorcycles.
Occupant Casualties	-	Refers to people who were injured or killed as a result of a vehicle collision and were identified as being either a vehicle driver or passenger.
Property Damage Only	-	A vehicle collision which resulted in property damage only, to the extent of $500.00 or more.
Reportable Collision	-	A vehicle collision which resulted in death, injury or property damage greater than $500.00.
Rural	-	Any area outside of that defined as 'urban'.
Urban	-	Any area within the corporate boundaries of a city, town, or village.

1987 TRAFFIC COLLISION SUMMARY

INTRODUCTION

- During 1987, 97,493 traffic collisions were recorded on Alberta roadways. Approximately 86% (83,980) of these crashes involved property damage only (over $500), while 13.4% (13,088) were non-fatal injury collisions. Fatal crashes accounted for less than 1% (425) of the total reported collisions.

FIVE YEAR TRENDS

- Over the five year period, the fatality rate rose in 1984 and 1985, but fell again in 1986 and 1987. The fatal collision rate, in terms of 100 million vehicle kilometres travelled, stands at 1.9 in 1987, compared to the five year low of 1.6 registered in 1983.

- Non-fatal injury collision rates and non-fatal injury rates decreased in 1984, rose in 1985 and 1986, but fell again in 1987. In 1987, the non-fatal injury collision rate, in terms of 100 million vehicle kilometres travelled, stands at 60.0, down from 1986 (66.7).

- In terms of 100 million vehicle kilometres travelled, property damage and total collision rates now stand at 385.0 and 447.0, respectively. This is an increase from 1986.

PROVINCIAL COMPARISONS

- In order to get a clear picture of Alberta's traffic injuries, in comparison to other provinces, rates rather than absolute numbers were also utilized. In this instance, injury rates per 100 million vehicle kilometres travelled were examined.

- In 1987, three provinces (Manitoba, Ontario, Prince Edward Island and Newfoundland) recorded lower fatality rates than Alberta in terms of 100 million vehicle kilometres travelled.

Table 1.1

ALBERTA TRAFFIC COLLISIONS

1983 - 1987

Severity of Collision	1987	1986	1985	1984	1983
Fatal Collisions	425	430	432	401	370
Non-Fatal Injury Collisions	13088	14383	12733	12100	12966
Property Damage Only Collisions	83980	82372	85224	76498	81871
TOTAL Reportable Collisions	97493	97185	98389	88999	95207
Number Killed	510	523	533	470	428
Number Injured	19809	22148	19855	18955	19237
TOTAL Number of Casualties	20319	22671	20388	19425	19665

OBSERVATIONS

In 1987, the overall number of collisions increased 0.3% when compared to 1986. However, in 1987, injury collisions decreased 9.0% while fatal crashes decreased 1.2%. The number of fatalities has decreased by 2.5% from 1986 to 1987, and the number of injuries decreased by 10.6%. In terms of the past five years, overall collisions declined from 1983 to 1984, increased in 1985, decreased again in 1986, and rose very slightly in 1987.

Table 1.2

ALBERTA TRAFFIC COLLISION RATES

1983 - 1987

Severity of Collision	Per 10,000 Licensed Drivers					Per 10,000 Population				
	1987	1986	1985	1984	1983	1987	1986	1985	1984	1983
Fatal Collisions	2.3	2.4	2.4	2.2	2.0	1.8	1.8	1.8	1.7	1.6
Number Killed	2.8	2.9	3.0	2.6	2.4	2.1	2.2	2.3	2.0	1.8
Non-Fatal Injury Collisions	72.3	78.9	70.8	66.5	71.3	55.0	60.3	54.2	51.5	55.2
Number Injured	109.4	121.5	110.5	104.2	105.8	83.2	92.9	84.5	80.7	81.9
Property Damage Only Collisions	464.0	452.0	474.2	420.7	450.3	352.8	345.4	362.8	325.7	348.4
TOTAL Reportable Collisions	538.7	533.4	547.4	489.4	523.6	409.6	407.5	418.8	378.9	405.2

Severity of Collision	Per 10,000 Registered Vehicles					Per 100 Million Vehicle Kilometres				
	1987	1986	1985	1984	1983	1987	1986	1985	1984	1983
Fatal Collisions	2.0	2.1	2.1	1.9	1.8	1.9	2.0	2.0	1.8	1.6
Number Killed	2.4	2.5	2.6	2.3	2.1	2.3	2.4	2.5	2.1	1.9
Non-Fatal Injury Collisions	61.9	69.0	62.6	58.3	63.1	60.0	66.7	59.1	54.1	57.8
Number Injured	93.7	106.3	97.6	91.3	93.6	90.8	102.7	92.1	84.8	85.7
Property Damage Only Collisions	397.1	395.2	419.0	368.3	398.2	385.0	382.0	395.3	342.2	364.7
TOTAL Reportable Collisions	461.0	466.3	483.7	428.5	463.1	447.0	450.7	456.3	398.1	424.1

Table 1.2
(Continued)

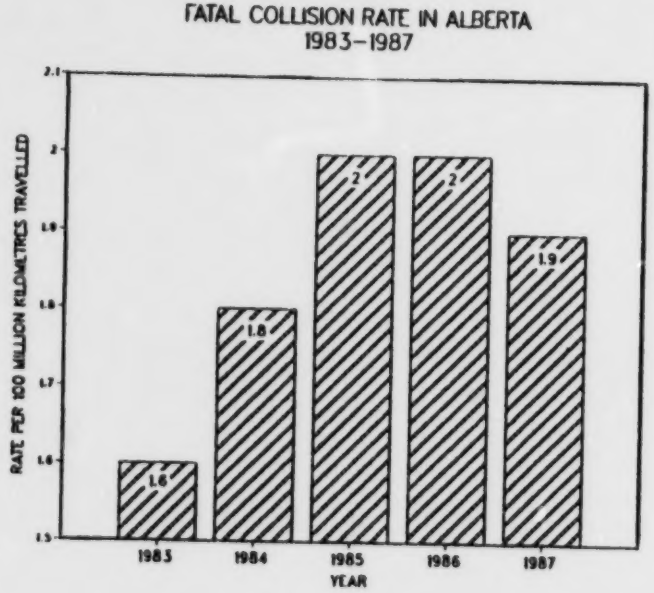
OBSERVATIONS

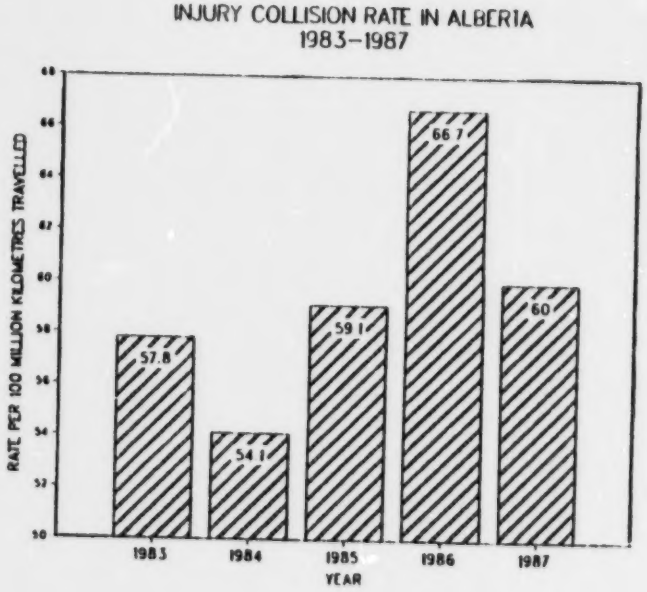
Fatal collision rates and fatality rates in terms of licensed drivers, population, registered vehicles and vehicle kilometres travelled have remained almost constant since 1985. In terms of vehicle kilometres travelled, the fatal collision rate declined to 1.9. In 1987 the non-fatal injury collision rate decreased over 1986. Over the past year, in terms of vehicle kilometres travelled, property damage and total collision rates have increased.

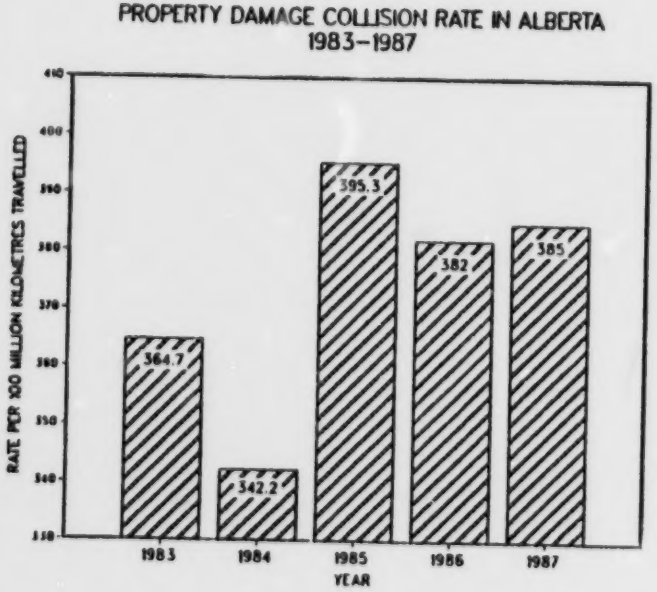
Sources:

Licensed Drivers - Operator Statistics, Motor Vehicles Division, Alberta Solicitor General, December 31, 1987.
Population - Based on postcensal estimate of the population by sex and age. Canada and Provinces, 1987, Statistics Canada.
Registered Vehicles - Motor Vehicles Division, Alberta Solicitor General, March 31, 1987.
Vehicle Km - Estimated on the basis of gross sales of gasoline, information supplied by Statistics Canada Catalogue No. 53-218(1987).

ALBERTA TRAFFIC COLLISION RATES 1983–1987







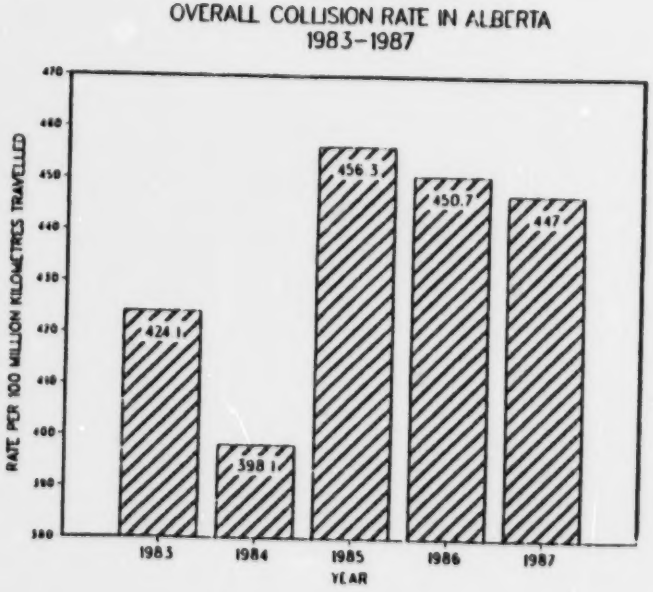


Figure 1

Table 1.3
Provincial Comparison of
Casualty Rates Per 100 Million
Vehicle Kilometres Travelled
1983 - 1987

	1987		1986		1985		1984		1983	
	Fatals	Injuries	Fatals	Injuries	Fatals	Injuries	Fatals	Injuries	Fatals	Injuries
Alberta	2.3	90.8	2.4	102.7	2.5	92.1	2.1	85.0	1.9	85.7
British Columbia	3.4	224.5	3.2	218.0	2.6	188.2	2.8	172.5	3.2	166.9
Saskatchewan	2.6	100.6	2.6	95.0	2.1	83.2	2.2	78.8	2.4	83.7
Manitoba	2.3	163.0	2.3	154.7	1.8	145.2	1.7	159.5	1.8	145.6
Ontario	2.0	197.8	1.8	181.3	1.7	156.4	1.6	141.6	1.8	136.3
Quebec	3.3	177.8	3.2	174.9	4.2	184.6	3.6	163.1	3.5	144.8
New Brunswick	3.1	141.5	2.8	134.1	3.0	122.5	3.3	116.1	2.6	108.3
Nova Scotia	3.0	99.2	2.5	94.2	2.9	98.8	2.8	77.4	3.0	102.0
Prince Edward Island	2.1	116.2	3.4	93.9	4.4	104.4	3.6	104.1	3.6	101.3
Newfoundland	2.1	109.3	2.2	98.1	2.5	92.8	2.2	79.0	3.7	85.3

Sources: Casualty statistics supplied by each province. Vehicle kilometres travelled were estimated on the basis of gross sales of gasoline, information supplied by Statistics Canada, catalogue No. 53-218 (1987).

OBSERVATIONS

Since 1983, most provinces recorded higher fatality and injury rates than Alberta. During 1987, Ontario, Prince Edward Island and Newfoundland recorded a lower fatality rate than Alberta. However, in 1987 Alberta recorded the lowest rate in Canada of non-fatal injuries per 100 million vehicle kilometres travelled.

PROVINCIAL TRAFFIC FATALITY RATES
Per 100 Million Vehicle Kilometres Travelled
1987

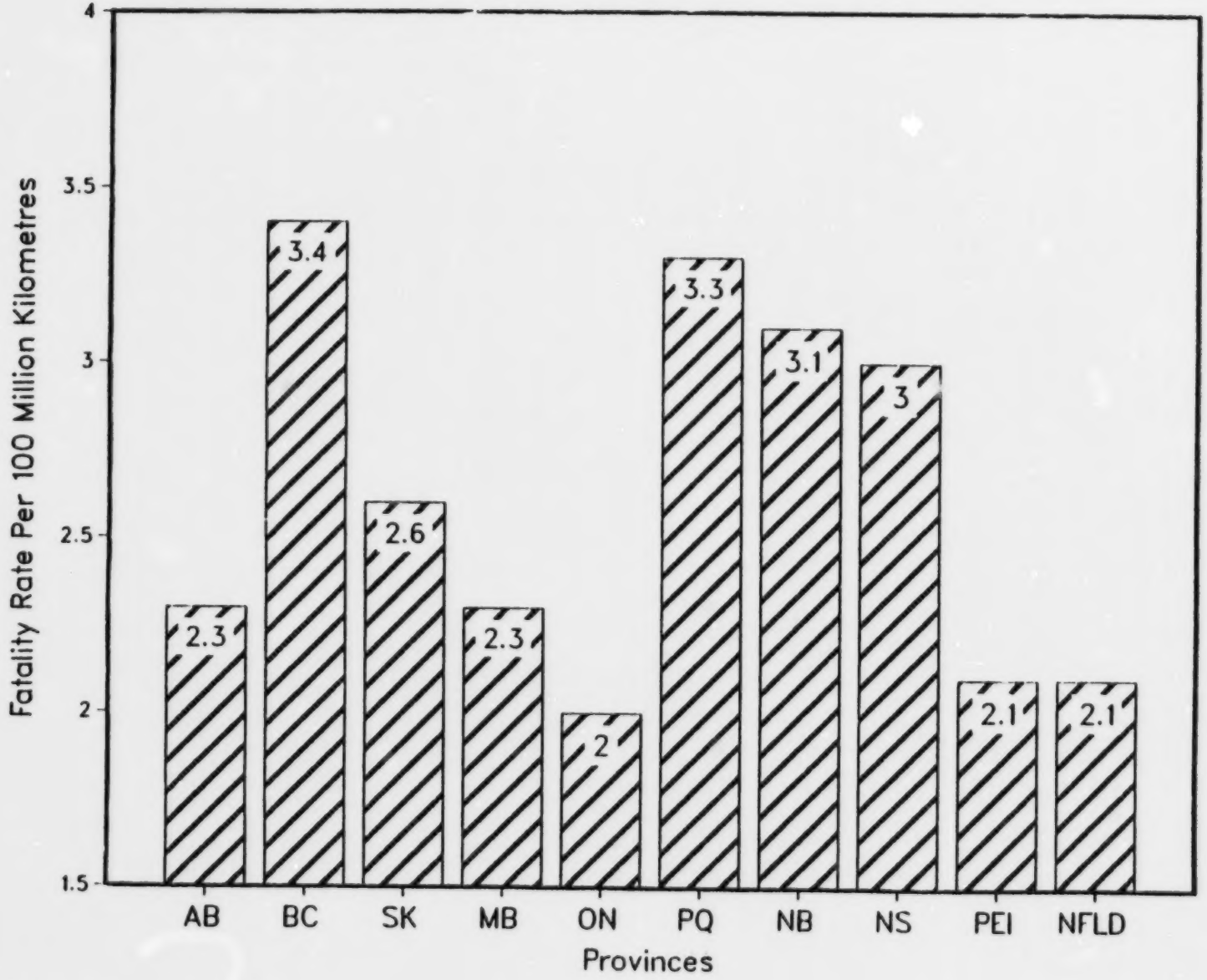


Figure 2

WHEN THE COLLISIONS OCCURRED

MONTH

- The months of May, June and August experienced more casualty collisions than other months. The highest number of property damage only collisions was recorded during the months of March and November.

DAY OF WEEK

- The daily distribution of collisions indicated that Friday was the most collision - prone day of the week.

TIME

- The afternoon rush hour period (3 p.m. - 6:59 p.m.) accounted for the highest proportion of collisions. The least collision - prone time period was the early morning (3 a.m. - 6:59 a.m.)

HOLIDAYS

- The six-day Christmas season recorded the greatest number of traffic collisions for a holiday period in 1987. The 1987 August long weekend recorded the highest total number of deaths.

Table 2.1

COLLISION OCCURRENCE BY MONTH

1987

Month	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Property Damage Only Collisions N	Property Damage Only Collisions %	Total Collisions N	Total Collisions %
January	21	4.9	1011	7.7	6943	8.3	7975	8.2
February	20	4.7	924	7.1	6342	7.6	7286	7.5
March	27	6.4	1011	7.7	8056	9.6	9094	9.3
April	31	7.3	918	7.0	5545	6.6	6494	6.7
May	45	10.6	1220	9.3	6442	7.7	7707	7.9
June	45	10.6	1280	9.8	6684	8.0	8009	8.2
July	39	9.2	1174	9.0	7048	8.4	8261	8.5
August	44	10.4	1198	9.2	6925	8.2	8167	8.4
September	39	9.2	1210	9.2	6912	8.2	8161	8.4
October	34	8.0	1094	8.4	7553	9.0	8681	8.9
November	54	12.7	1042	8.0	8408	10.0	9504	9.7
December	26	6.1	1004	7.7	7066	8.4	8096	8.3
Unspecified	-	-	2	0.0	56	0.1	58	0.1
TOTAL Number of Collisions	**425**	**100.0**	**13088**	**100.0**	**83980**	**100.0**	**97493**	**100.0**

OBSERVATIONS

The month of November experienced the most fatal crashes, followed by the spring and summer months of May, June and August. The warm weather months (May - September) experienced more injury collisions than any other season. The highest number of property damage only collisions was reported in the months of March and November.

Table 2.2

COLLISION OCCURRENCE BY

DAY OF WEEK

1987

Day of Week	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Property Damage Only Collisions N	Property Damage Only Collisions %	Total Collisions N	Total Collisions %
Monday	55	12.9	1615	12.3	11876	14.1	13546	13.9
Tuesday	56	13.2	1871	14.3	12035	14.3	13962	14.3
Wednesday	41	9.6	1646	12.6	11680	13.9	13367	13.7
Thursday	57	13.4	1935	14.8	12713	15.1	14705	15.1
Friday	74	17.4	2268	17.3	14920	17.8	17262	17.7
Saturday	70	16.5	2188	16.7	12606	15.0	14864	15.2
Sunday	72	16.9	1565	12.0	8150	9.7	9787	10.0
TOTAL Number of Collisions	**425**	**100.0**	**13088**	**100.0**	**83980**	**100.0**	**97493**	**100.0**

OBSERVATIONS

The daily distribution of collisions indicated that overall Friday was the most collision-prone day of the week, followed by Saturday and Thursday.

Table 2.3

COLLISION OCCURRENCE BY

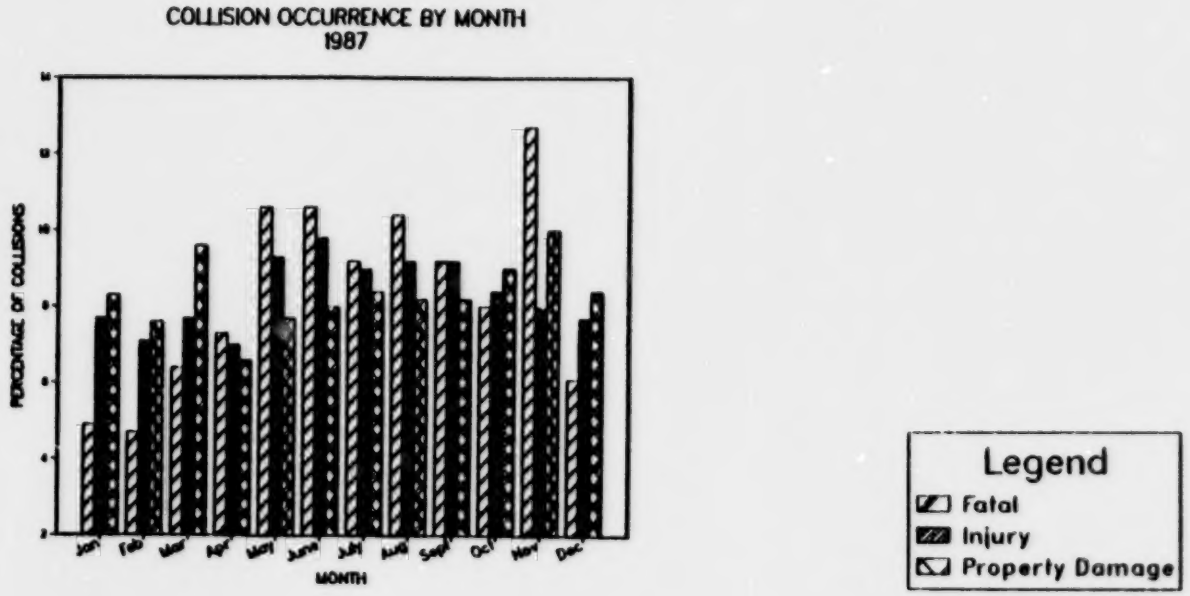
TIME PERIODS

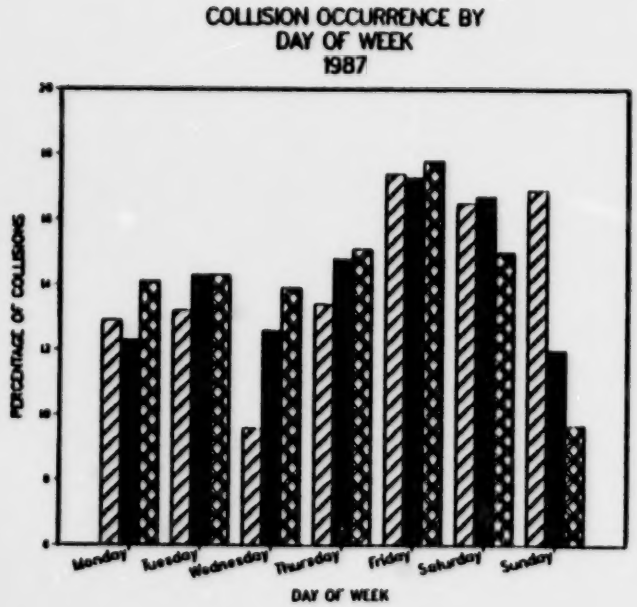
1987

Time Period	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Property Damage Only Collisions N	Property Damage Only Collisions %	Total Collisions N	Total Collisions %
11:00 p.m. - 2:59 a.m.	57	13.4	1489	11.4	7534	9.0	9080	9.3
3:00 a.m. - 6:59 a.m.	49	11.5	803	6.1	3475	4.1	4327	4.4
7:00 a.m. - 10:59 a.m.	55	12.9	1843	14.1	13921	16.6	15818	16.2
11:00 a.m. - 2:59 p.m.	65	15.3	2664	20.4	20406	24.3	23135	23.7
3:00 p.m. - 6:59 p.m.	115	27.1	3748	28.6	22816	27.2	26679	27.4
7:00 p.m. - 10:59 p.m.	80	18.8	2321	17.7	13949	16.6	16350	16.8
Unspecified	4	0.9	220	1.7	1879	2.2	2104	2.2
TOTAL Number of Collisions	**425**	**100.0**	**13088**	**100.0**	**83980**	**100.0**	**97493**	**100.0**

OBSERVATIONS

The afternoon rush hour period (3:00 p.m. - 6:59 p.m.) accounted for the largest percentage (27.4%) of collisions occurring in a 24 hour period. The least collision - prone time period was the early morning (3:00 a.m. - 6:59 a.m.).


COLLISION OCCURRENCE BY MONTH
1987
PERCENTAGE OF COLLISIONS
MONTH
Legend
Fatal
Injury
Property Damage


COLLISION OCCURRENCE BY
DAY OF WEEK
1987
PERCENTAGE OF COLLISIONS
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
DAY OF WEEK

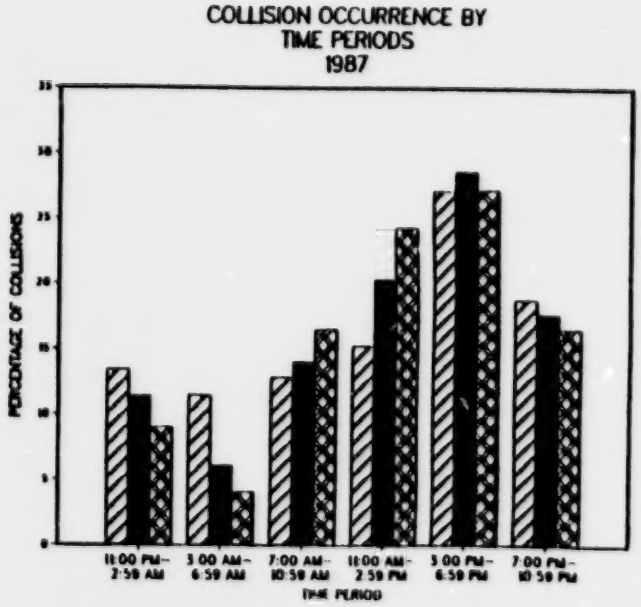

COLLISION OCCURRENCE BY
TIME PERIODS
1987
PERCENTAGE OF COLLISIONS
11:00 PM-
2:59 AM
3:00 AM-
6:59 AM
7:00 AM-
10:59 AM
11:00 AM-
2:59 PM
3:00 PM-
6:59 PM
7:00 PM-
10:59 PM
TIME PERIOD

Figure 3

Table 2.4

COLLISIONS DURING 1987 HOLIDAYS

Holidays	Number Killed		Number Injured		TOTAL* COLLISIONS	
	N	%	N	%	N	%
New Year's Day (January 1)	0	0.0	52	3.1	202	3.0
Easter (April 16 - 20)	5	9.4	245	14.4	983	14.6
Victoria Day (May 15 - 18)	11	20.8	238	14.0	859	12.7
Canada Day (July 1)	0	0.0	46	2.7	211	3.1
August Long Weekend (July 31, August 1 - 3)	13	24.5	295	17.3	984	14.6
Labour Day (September 4 - 7)	7	13.2	207	12.1	949	14.1
Thanksgiving (October 9 - 12)	11	20.8	214	12.6	1022	15.1
Remembrance Day (November 11)	0	0.0	62	3.6	238	3.5
Christmas Season (December 23 - 28)	6	11.3	345	20.2	1305	19.3
TOTAL	53	100.0	1704	100.0	6753	100.0

OBSERVATIONS

The August long weekend recorded the highest number of individuals killed. The Christmas Season and the Thanksgiving long weekend recorded the highest number of total collisions.

* Includes fatal, injury and property damage only collisions.

VICTIMS

ROAD USER CLASS

- The majority of traffic victims were drivers and passengers of vehicles. Pedestrians and motorcyclists accounted for 6.1% and 4.8% of the total casualties, respectively.

AGE OF CASUALTIES

- Casualty rates per 10,000 population were highest for persons between the ages of 15 and 24. The lowest casualty rates were recorded for children 14 and under and people 65 years of age and over.

Table 3.1

INJURIES AND FATALITIES

BY ROAD USER CLASS

1987

Road User Class	Persons Killed N	Persons Killed %	Persons Injured N	Persons Injured %	Total Casualties N	Total Casualties %
Drivers	254	49.8	10371	52.4	10625	52.3
Passengers	146	28.6	6471	32.7	6617	32.6
Pedestrians	59	11.6	1175	5.9	1234	6.1
Motorcyclists	30	5.9	952	4.8	982	4.8
Bicyclists	9	1.8	743	3.8	752	3.7
Other	9	1.8	78	0.4	87	0.4
Unspecified	3	0.6	19	0.1	22	0.1
TOTAL	510	100.0	19809	100.0	20319	100.0

OBSERVATIONS

The majority of traffic victims were drivers and passengers of vehicles. Pedestrians and motorcyclists accounted for 6.1% and 4.8% of the total casualties, respectively.

Table 3.2

AGE OF PERSONS INVOLVED

IN CASUALTY COLLISIONS

1987

Age in Years	Persons Killed N	Persons Killed %	Persons Injured N	Persons Injured %	Casualty Rate Per 10,000 Population*
Under 5	18	3.5	439	2.2	22.2
5 - 9	13	2.5	700	3.5	38.5
10 - 14	13	2.5	815	4.1	48.1
15 - 19	82	16.1	3627	18.3	202.7
20 - 24	88	17.3	3496	17.7	166.5
25 - 29	59	11.6	2702	13.6	110.8
30 - 34	46	9.0	1939	9.8	84.9
35 - 44	51	10.0	2436	12.3	72.8
45 - 54	50	9.8	1315	6.6	62.5
55 - 64	39	7.6	993	5.0	58.1
65 and over	51	10.0	923	4.7	49.1
Unspecified	-	-	424	2.1	
TOTAL	510	100.0	19809	100.0	

OBSERVATIONS

Casualty rates per 10,000 population were highest for persons between the ages of 15 and 24. The lowest casualty rates were recorded for children (14 years of age and younger) and people 65 and over.

* Based on postcensal estimates of the Alberta population by sex and age. Canada and Provinces, 1987. Statistics Canada.

AGE OF CASUALTIES
CASUALTY RATE PER 10,000 POPULATION
1987

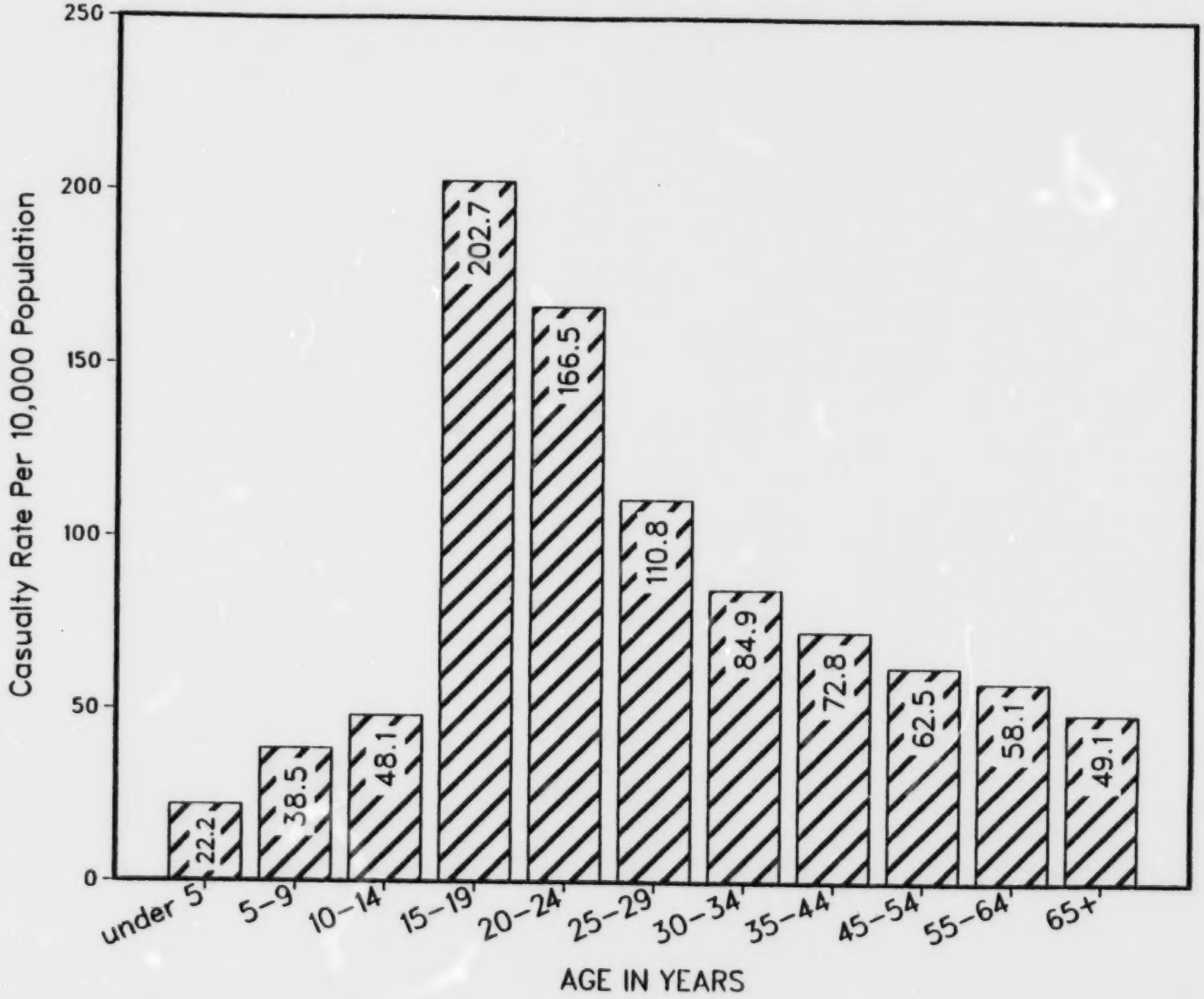


Figure 4

DRIVER COMPONENT

AGE AND SEX OF DRIVERS

- Collision rates per 1000 licensed drivers indicated that 16-17 year olds were more likely to be involved in a traffic collision than any other age group. The next age group most likely to be involved in collisions were 18 to 19 year olds.

DRIVER ACTIONS

- Driver error or misjudgement was involved in approximately 54.4% of casualty collisions. Running off the road, failing to observe a traffic control device and travelling at an unsafe speed were the most frequent driver actions contributing to casualty collisions.

Table 4.1

AGE AND SEX* OF DRIVERS INVOLVED IN ALL COLLISIONS: PER 1,000 LICENSED DRIVERS

1987

	MALES			FEMALES			TOTAL		
Age of Driver	N	%	Per 1000** Licensed Drivers	N	%	Per 1000** Licensed Drivers	N	%	Per 1000** Licensed Drivers
Under 16	932	0.7	57.0	473	0.3	40.2	1405	1.0	50.0
16 - 17	5649	4.0	176.0	2824	2.0	107.5	8473	6.0	145.2
18 - 19	7008	5.0	186.4	3086	2.2	93.7	10094	7.2	143.1
20 - 24	16822	12.0	142.6	7565	5.4	71.4	24387	17.4	108.9
25 - 34	28285	20.1	94.8	13094	9.3	50.5	41379	29.4	74.2
35 - 44	15473	11.0	75.9	8349	5.9	47.9	23822	16.9	63.0
45 - 54	9213	6.6	76.1	4088	2.9	41.9	13301	9.5	60.8
55 - 64	6473	4.6	69.9	2382	1.7	35.9	8855	6.3	55.7
65 and over	4861	3.5	67.8	1800	1.3	41.1	6661	4.7	57.7
Unspecified	1595	1.1		583	0.4		2178	1.5	
TOTAL Number of Drivers	96311	68.5		44244	31.5		140555	100.0	

OBSERVATIONS

Overall Collision rates per 1000 licensed drivers indicated that 16-17 year olds were more likely to be involved in a traffic collision than any other age group. The next age group most likely to be involved in crashes was 18 to 19 year olds.

* Includes only drivers whose sex was specified on the collision report form.

** Source: Alberta Solicitor General - Motor Vehicles Division. Operator Statistics, December 31, 1987.

AGE AND SEX OF DRIVERS INVOLVED IN ALL COLLISIONS
COLLISION RATE PER 1000 LICENSED DRIVERS
1987

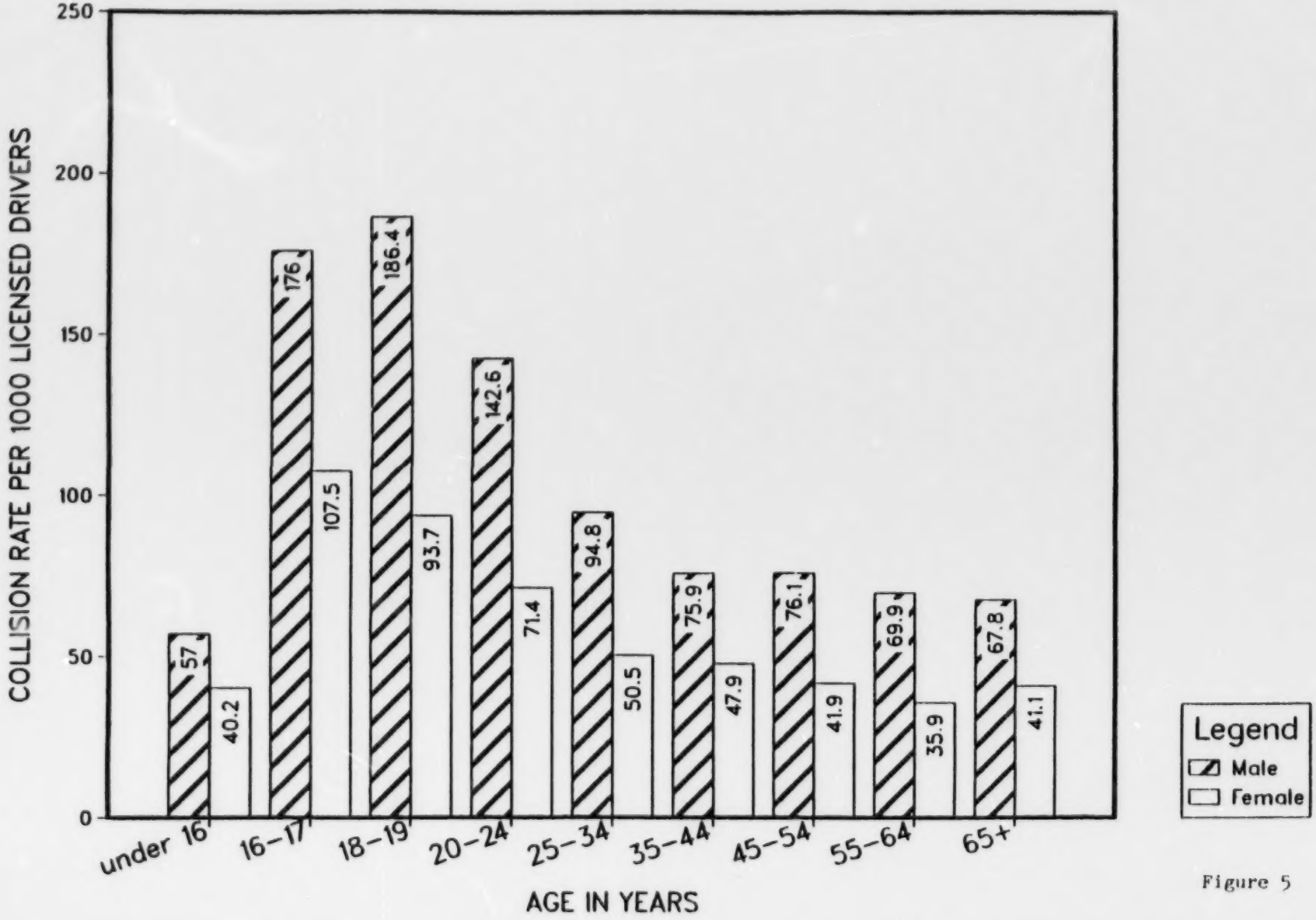


Figure 5

Table 4.2

ACTIONS OF DRIVERS INVOLVED IN

CASUALTY COLLISIONS*

1987

Driver Action	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
Driving Properly	236	39.3	9145	45.8	9381	45.6
Ran Off Road	87	14.5	1543	7.7	1630	7.9
Failed to Observe Traffic Control Device	29	4.8	1288	6.5	1317	6.4
Unsafe Speed	68	11.3	1155	5.8	1223	6.0
Failed to Yield Right-of-Way	22	3.7	1044	5.2	1066	5.2
Left Turn Across Path	17	2.8	1031	5.2	1048	5.1
Followed Too Closely	4	0.7	995	5.0	999	4.9
Entered Lane When Unsafe	9	1.5	366	1.8	375	1.8
Left of Centre	51	8.5	267	1.3	318	1.6
Improper Turn	6	1.0	311	1.6	317	1.5
Improper Passing	12	2.0	154	0.8	166	0.8
Backed Unsafely	1	0.2	122	0.6	123	0.6
Failed to Signal	0	0.0	16	0.1	16	0.1
Other	58	9.7	2517	12.6	2575	12.5
TOTAL Number of Drivers	**600**	**100.0**	**19954**	**100.0**	**20554**	**100.0**

OBSERVATIONS

Driver error or misjudgement was involved in 54.4% of casualty collisions. Running off the road, failing to observe traffic control device, and travelling at an unsafe speed were the most frequently identified driver actions contributing to casualty collisions.

* Includes only those cases where driver action was specified on the collision report form.

VEHICLE COMPONENT

TYPES OF VEHICLES

- Passenger cars and pick up trucks/vans were the vehicles most frequently involved in total casualty collisions. Motorcycles were involved in 4.0% of casualty collisions and bicycles were involved in 3.3% of casualty collisions.

VEHICULAR FACTORS

- Vehicle defects played a minor role in casualty collisions. Less than 3% of vehicles involved in casualty collisions were identified as having a vehicle defect. The most common defects involved tire failure and defective brakes.

POINT OF IMPACT

- The most common point of impact in casualty collisions involved the front of the vehicle. Approximately 38% of the impacts involved the centre front.

Table 5.1

TYPES OF VEHICLES INVOLVED IN CASUALTY COLLISIONS*

1987

Type of Vehicle	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Passenger Car	302	45.1	13829	63.1	14131	62.6
Pick Up Truck/Van	216	32.2	5340	24.4	5556	24.6
Motorcycle	31	4.6	861	3.9	892	4.0
Bicycle	9	1.3	747	3.4	756	3.3
Truck 4000 Kg+	42	6.3	489	2.2	531	2.4
Tractor - Trailer	55	8.2	359	1.6	414	1.8
Other Bus	3	0.5	113	0.5	116	0.5
Off Hwy. Vehicle	8	1.2	64	0.3	72	0.3
School Bus	0	0.0	28	0.1	28	0.1
Farm Equipment	3	0.5	20	0.1	23	0.1
Other	1	0.1	56	0.3	57	0.3
TOTAL Number of Vehicles	670	100.0	21906	100.0	22576	100.0

OBSERVATIONS

Passenger cars and pick up trucks/vans were the vehicles most frequently involved in total casualty collisions. Overall, motorcycles were involved in 4.0% and bicycles in 3.3% of casualty collisions. Tractor-trailers were involved in 1.8% of total casualty crashes, but in 8.2% of fatal crashes.

* Includes only those cases where type of vehicle was specified on the collision report form.

Table 5.2

VEHICULAR FACTORS

INVOLVED IN CASUALTY COLLISIONS*

1987

Vehicular Factors	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
No Defect Present	466	95.5	18892	97.7	19358	97.7
Tire Failure/Inadequate	5	1.0	113	0.6	118	0.6
Defective Brakes	4	0.8	101	0.5	105	0.5
Lighting Defect	7	1.4	53	0.3	60	0.3
Other	6	1.2	168	0.9	174	0.9
TOTAL Number of Vehicles	488	100.0	19327	100.0	19815	100.0

OBSERVATIONS

Vehicle defects played a minor role in casualty collisions. Less than 3% of vehicles involved in these types of collisions were identified as having a vehicle defect. The most common defects included tire failure and defective brakes.

* Includes only those cases in which a vehicular factor was specified on the collision report form.

Table 5.3

POINT OF IMPACT

ON VEHICLES INVOLVED IN

CASUALTY COLLISIONS*

1987

Point of Impact	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Centre Front	268	42.3	7792	38.1	8060	38.2
Right Front	36	5.7	2179	10.7	2215	10.5
Left Front	58	9.1	2095	10.3	2153	10.2
Right Side	50	7.9	1194	5.8	1244	5.9
Left Side	35	5.5	1125	5.5	1160	5.5
Centre Rear	20	3.2	2516	12.3	2536	12.0
Right Rear	11	1.7	641	3.1	652	3.1
Left Rear	13	2.1	664	3.3	677	3.2
Top	4	0.6	54	0.3	58	0.3
Undercarriage	5	0.8	129	0.6	134	0.6
Rollover	134	21.1	2053	10.0	2187	10.4
TOTAL Number of Vehicles	**634**	**100.0**	**20442**	**100.0**	**21076**	**100.0**

OBSERVATIONS

The most common point of impact in casualty collisions involved the front of the vehicle. Approximately 38% of the impacts involved the centre front, while 12.0% of the impacts involved the centre rear and 10.5% involved the right front.

* Includes only those cases in which point of impact was specified on the collision report form.

ENVIRONMENTAL COMPONENT

LOCATION

- The majority of fatal crashes occurred in rural areas, whereas the majority of injury and property damage only crashes occurred in urban areas.

SURFACE CONDITION

- The majority (62.9%) of the casualty collisions occurred when surface conditions were dry. Snow/ice were present in 13.0% of the casualty crashes.

ROAD LOCATION

- Approximately 46.6% of casualty collisions were intersection-related. However, fatal collisions were more likely to be non-intersection related (63.5%).

Table 6.1

LOCATION OF COLLISIONS

1987

	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Only Collisions		Total Collisions	
Location	N	%	N	%	N	%	N	%
Urban	115	27.1	9086	69.4	69611	82.9	78812	80.8
Rural	310	72.9	4002	30.6	14369	17.1	18681	19.2
TOTAL Number of Collisions	**425**	**100.0**	**13088**	**100.0**	**83980**	**100.0**	**97493**	**100.0**

OBSERVATIONS

Collisions which occurred in rural areas accounted for 72.9% of all fatal crashes. Collisions occurring in urban areas resulted in the highest proportion of non-fatal injury collisions (69.4%) and property damage only crashes (82.9%).

Table 6.2

CASUALTY COLLISION OCCURRENCE

BY SURFACE CONDITION

1987

Surface Condition	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Dry	272	64.0	8229	62.9	8501	62.9
Snowy/Icy	48	11.3	1705	13.0	1753	13.0
Wet	38	8.9	1254	9.6	1292	9.6
Loose Material	46	10.8	694	5.3	740	5.5
Other	1	0.2	51	0.4	52	0.4
Unspecified	20	4.7	1155	8.8	1175	8.7
TOTAL Number of Collisions	**425**	**100.0**	**13088**	**100.0**	**13513**	**100.0**

OBSERVATIONS

The majority of casualty collisions occurred when surface conditions were dry. Snow and ice were involved in 11.3% of fatal collisions and 13.0% of non-fatal injury collisions.

Table 6.3

ROAD LOCATION OF CASUALTY COLLISIONS

1987

Road Location	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Intersection-Related	117	27.5	6185	47.3	6302	46.6
Non-Intersection Related	270	63.5	5616	42.9	5886	43.5
At/Near Entrance to Private Property	21	4.9	432	3.3	453	3.3
Parking Lot	3	0.7	293	2.2	296	2.2
At/Near Commercial Entrance	0	0.0	253	1.9	253	1.9
Off Highway	3	0.7	126	1.0	129	1.0
At/Near Service Road	5	1.2	91	0.7	96	0.7
At/Near Railroad Crossing	6	1.4	69	0.5	75	0.6
Unspecified	0	0.0	23	0.2	23	0.2
TOTAL Number of Collisions	425	100.0	13088	100.0	13513	100.0

OBSERVATIONS

46.6% of casualty collisions were intersection-related. Fatal collisions were more likely to be non-intersection related (63.5%).

SPECIAL TYPES OF VEHICLES

MOTORCYCLES

- Fatal and injury motorcycle collision rates based on motorcycle registrations decreased from 1986.

- The majority of motorcycle casualty collisions involved male drivers. Motorcycle drivers under the age of 25 were the age group most likely to be involved in these collisions. In particular 16 and 17 year old motorcycle drivers had an involvement rate per 1,000 licenced drivers of 60.2, a rate over three times greater that of the 20-24 year old motorcycle drivers.

- Compared to drivers involved in all types of vehicle collisions, motorcycle drivers were less likely to fail to yield right-of-way, to fail to observe a traffic control device, or make a left turn across the path of an oncoming vehicle. However, motorcycle drivers were more likely to drive at an unsafe speed or pass improperly.

- Compared to drivers involved in all types of vehicle casualty collisions, motorcycle drivers were more likely to have consumed alcohol before the crash.

- Vehicular factors were involved in 3.7% of motorcycle casualty collisions compared to 2.3% of casualty collisions involving all types of vehicles.

- The majority of casualty collisions involving motorcycles occurred on dry roads.

TRACTOR - TRAILERS

- In 1987, there were 63 persons killed and 529 injured in collisions involving tractor-trailers. This represents a decrease in casualties over 1986.

- Compared to drivers of other vehicles, tractor-trailer drivers were more likely to run off the road or pass improperly.

- Tractor-trailer drivers were less likely to consume alcohol before the crash than were drivers of other types of collision - involved vehicles.

- Vehicular factors were slightly more likely to be present in tractor-trailer casualty collisions than in casualty collisions involving other types of vehicles.

- The occurrence of casualty collisions involving tractor-trailers was highest in the months of October and November.

TRAINS

- In 1987, 4 people were killed and 42 people were injured in crashes in which a train was involved. The number of casualties involving trains has increased from 1986.

- The majority of casualty collisions involving trains occurred in the month of May.

- Approximately 6.9% of drivers involved in a train crash were driving properly. A large percentage of drivers either failed to observe the traffic control device (41.4%) or failed to yield right-of-way to the train (17.2%).

Table 7.1

CASUALTY COLLISIONS INVOLVING MOTORCYCLES

1983 - 1987

	1987	1986	1985	1984	1983
Number of Motorcycles					
Fatal	31	33	33	26	39
Non-Fatal Injury	861	989	896	873	981
TOTAL Number of Motorcycles	**892**	**1022**	**929**	**899**	**1020**
Casualties*					
Number Killed	32	33	32	27	44
Number Injured	1029	1156	1099	1030	1197
TOTAL Casualties	**1061**	**1189**	**1131**	**1057**	**1241**
Number of Motorcycles Involved in Casualty Collisions Per 10,000 Registered Motorcycles**					
Fatal Collisions	6.8	7.1	5.5	4.4	6.6
Non-Fatal Injury Collisions	190.0	212.7	150.2	147.9	165.5

OBSERVATIONS

Motorcycle involvement in fatal and injury collisions, based on motorcycle registrations decreased in 1987; after increasing the previous 2 years.

* This refers to the number of people killed and injured in collisions in which a motorcycle was involved. It does not refer to the number of motorcyclists killed and injured.

** Source: Based on vehicle registration statistics, Motor Vehicles Division, Alberta Solicitor General, March 31, 1987

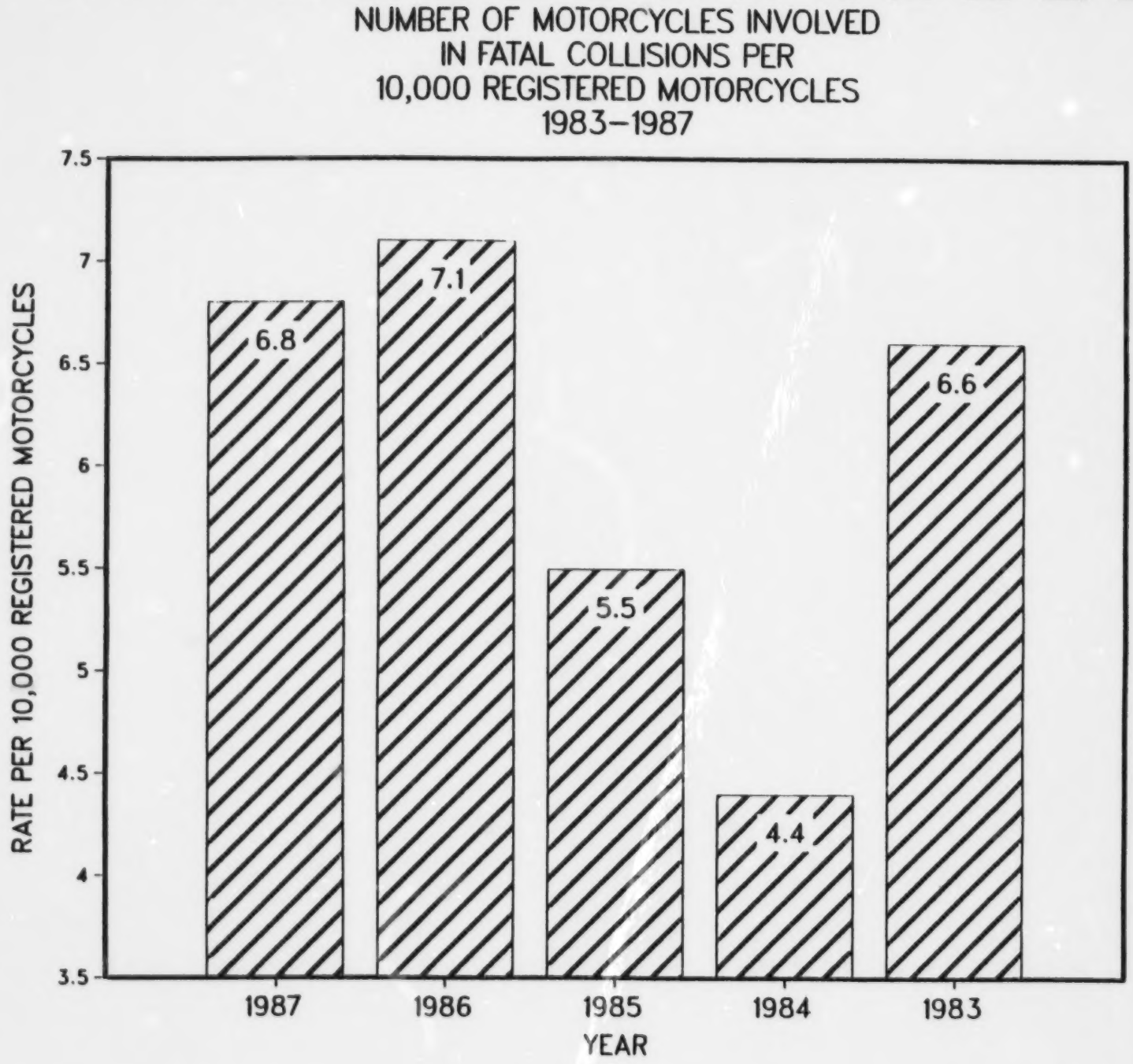

NUMBER OF MOTORCYCLES INVOLVED
IN FATAL COLLISIONS PER
10,000 REGISTERED MOTORCYCLES
1983–1987
RATE PER 10,000 REGISTERED MOTORCYCLES
7.5
7
6.5
6
5.5
5
4.5
4
3.5
6.8
7.1
5.5
4.4
6.6
1987
1986
1985
1984
1983
YEAR

Figure 6

Table 7.2

CASUALTY COLLISIONS INVOLVING MOTORCYCLES:

AGE AND SEX OF MOTORCYCLE DRIVER*

1987

	Male		Female		Total		Per 1,000 Licensed Motorcycle Operators**
Age of Driver	N	%	N	%	N	%	%
Under 16	21	2.4	5	0.6	26	2.9	-
16 - 17	50	5.7	3	0.3	53	6.0	60.2
18 - 19	124	14.0	5	0.6	129	14.6	48.9
20 - 24	268	30.3	7	0.8	275	31.1	16.5
25 - 34	267	30.2	11	1.2	278	31.4	4.0
35 - 44	76	8.6	3	0.3	79	8.9	2.0
45 - 54	31	3.5	1	0.1	32	3.6	2.6
55 - 64	7	0.8	1	0.1	8	0.9	1.3
65 and over	4	0.5	0	0.0	4	0.5	2.4
TOTAL Number of Motorcycle Drivers	**848**	**95.9**	**36**	**4.1**	**884**	**100.0**	

OBSERVATIONS

The majority of motorcycle casualty collisions involved male drivers. Motorcycle drivers under the age of 25 were the age group most likely to be involved in collisions. In particular, 16 and 17 year old motorcycle drivers had a high involvement rate. The age group least likely to be involved in collisions were drivers 55-64 years of age. These age and sex comparisons are limited due to the lack of driving exposure data. That is, in order to make valid age comparisons, it is important to take into account the number of kilometres driven annually by each age and sex group of motorcycle operators.

* Includes only drivers whose age and sex was specified on the collision report form.

** Source: Alberta Solicitor General - Motor Vehicles Division. Operator Statistics, December 31, 1987.

Table 7.3

CASUALTY COLLISIONS

INVOLVING MOTORCYCLES:

ACTION OF MOTORCYCLE DRIVER*

1987

Driver Action	Motorcycle Collisions N	Motorcycle Collisions %	Total Casualty Collisions (All Vehicle Types) %
Driving Properly	360	44.0	45.6
Unsafe Speed	139	17.0	6.0
Ran Off Road	62	7.6	7.9
Followed Too Closely	32	3.9	4.9
Failed to Observe Traffic Control Device	26	3.2	6.4
Improper Passing	19	2.3	0.8
Failed to Yield Right-of-Way	16	2.0	5.2
Left of Centre	13	1.6	1.6
Left Turn Across Path	12	1.5	5.1
Entered Lane When Unsafe	11	1.3	1.8
Improper Turn	6	0.7	1.5
Failed to Signal	1	0.1	0.1
Other	121	14.8	12.5
TOTAL Number of Motorcycle Drivers	**818**	**100.0**	

OBSERVATIONS

Improper driver actions were a contributory factor for 56% of the motorcyclists involved in casualty collisions. Compared to drivers involved in other types of vehicle casualty collisions, motorcycle drivers were more likely to drive at an unsafe speed, or pass improperly. However, motorcycle drivers were less likely to fail to yield right-of-way, to fail to observe a traffic control device, or make a left turn across the path of an oncoming vehicle.

* Based only on cases where driver action was specified on the collision report form.

Table 7.4

CASUALTY COLLISIONS

INVOLVING MOTORCYCLES:

CONDITION OF MOTORCYCLE DRIVER*

1987

Driver Condition	Motorcycle Collisions N	Motorcycle Collisions %	Total Casualty Collisions (All Vehicle Types) %
Normal	660	81.1	86.0
Had Been Drinking	101	12.4	7.8
Alcohol Impaired	49	6.0	4.8
Other	4	0.5	1.4
TOTAL Number of Motorcycle Drivers	**814**	**100.0**	

OBSERVATIONS

The motorcycle driver's condition was a contributory factor for 18.9% of these crashes. Compared to drivers involved in other types of vehicle casualty collisions, motorcycle drivers were more likely to have consumed alcohol prior to the crash.

* Based only on cases where driver condition was specified on the collision report form.

Table 7.5

CASUALTY COLLISIONS
INVOLVING MOTORCYCLES:
VEHICULAR FACTORS*
1987

Vehicular Factors	Motorcycle Collisions N	Motorcycle Collisions %	Total Casualty Collisions (All Vehicle Types) %
No Defect Present	759	96.3	97.7
Tire Failure/Inadequate	8	1.0	0.6
Lighting Defect	3	0.4	0.3
Defective Brakes	0	0.0	0.5
Other	18	2.3	0.9
TOTAL Number of Motorcycles	788	100.0	

OBSERVATIONS

Vehicular factors were involved in 3.7% of motorcycle casualty collisions, compared to 2.3% in casualty collisions involving other types of vehicles. In particular, motorcycles were almost twice as likely as other vehicle types to experience tire failure.

* Based only on cases where a vehicular factor was specified on the collision report form.

Table 7.6

CASUALTY COLLISIONS

INVOLVING MOTORCYCLES:

MONTH OF OCCURRENCE

1987

Month	N	%
January	2	0.2
February	11	1.3
March	8	0.9
April	84	9.6
May	126	14.5
June	153	17.6
July	146	16.8
August	121	13.9
September	137	15.7
October	55	6.3
November	24	2.8
December	4	0.5
TOTAL Number of Collisions	871	100.0

OBSERVATIONS

The months of May to September recorded the highest proportion of casualty crashes involving motorcycles.

Table 7.7

CASUALTY COLLISIONS

INVOLVING MOTORCYCLES:

ROAD SURFACE CONDITION*

1987

Road Surface Condition	N	%
Dry	693	86.7
Wet	50	6.3
Loose Material	45	5.6
Snowy/Icy	2	0.3
Other	9	1.1
TOTAL Number of Collisions	**799**	**100.0**

OBSERVATIONS

The majority of casualty collisions involving motorcycles occurred on dry roads. However, 6.3% of the collisions occurred on wet road surfaces. Loose material on the road surface was involved in 5.6% of motorcycle casualty crashes.

* Based only on collisions where road surface condition was specified on the collision report form.

Table 7.8

CASUALTY COLLISIONS INVOLVING TRACTOR-TRAILERS

1983-1987

Number of Tractor-Trailers	1987	1986	1985	1984	1983
	N	N	N	N	N
Fatal	55	53	63	47	27
Non-Fatal Injury	359	425	433	422	384
TOTAL Number of Tractor-Trailers	**414**	**478**	**496**	**469**	**411**
Casualties*					
Number Killed	63	65	86	54	34
Number Injured	529	607	646	646	528
TOTAL Casualties	**592**	**672**	**732**	**700**	**562**

OBSERVATIONS

In 1987, there were 63 persons killed and 529 injured in collisions involving tractor-trailers. This represents a decrease in casualties from 1986. The total number of tractor-trailers involved in casualty crashes also declined in 1987, standing at 414 compared to the five-year high of 496 recorded in 1985.

* This refers to the number of people killed and injured in collisions in which a tractor-trailer was involved. It does not refer to the number of tractor-trailer drivers killed and injured.

Table 7.9

CASUALTY COLLISIONS
INVOLVING TRACTOR-TRAILERS:
DRIVER ACTION*
1987

Driver Action	Tractor-Trailer Collisions N	Tractor-Trailer Collisions %	Total Casualty Collisions (All Vehicle Types) %
Driving Properly	208	54.7	45.6
Ran Off Road	56	14.7	7.9
Failed to Observe Traffic Control Device	19	5.0	6.4
Followed Too Closely	12	3.2	4.9
Unsafe Speed	8	2.1	6.0
Improper Passing	8	2.1	0.8
Entered Lane When Unsafe	7	1.8	1.8
Left Turn Across Path	5	1.3	5.1
Left of Centre	5	1.3	1.6
Failed to Yield Right-of-Way	5	1.3	5.2
Improper Turn	3	0.8	1.5
Backed Unsafely	1	0.3	0.6
Other	43	11.3	12.5
TOTAL Number of Drivers	**380**	**100.0**	

OBSERVATIONS

Improper driver actions were exhibited by approximately 45% of the tractor-trailer drivers involved in casualty collisions. Compared to drivers of other vehicles, tractor-trailer drivers were more likely to run off the road or pass improperly. However, operators of tractor-trailers were less likely than other vehicle operators to drive at an unsafe speed, to fail to yield the right-of-way, or to make an unsafe left turn.

* Based only on those cases where driver action was specified on the collision report form.

Table 7.10

CASUALTY COLLISIONS

INVOLVING TRACTOR-TRAILERS:

DRIVER CONDITION*

1987

Driver Condition	Tractor-Trailer Collisions N	Tractor-Trailer Collisions %	Total Casualty Collisions (All Vehicle Types) %
Normal	365	95.3	86.0
Had Been Drinking	7	1.8	7.8
Alcohol Impaired	3	0.8	4.8
Other	8	2.1	1.4
TOTAL Number of Drivers	383	100.0	

OBSERVATIONS

The condition of the tractor-trailer driver was a contributory factor for only 4.7% of the drivers involved. Tractor-trailer drivers were less likely to consume alcohol before the crash than were drivers of other types of collision-involved vehicles.

* Based only on cases where driver condition was specified on the collision report form.

Table 7.11

CASUALTY COLLISIONS

INVOLVING TRACTOR-TRAILERS:

VEHICULAR FACTORS*

1987

Vehicular Factors	Tractor-Trailer Collisions N	Tractor-Trailer Collisions %	Total Casualty Collisions (All Vehicle Types) %
No Defect Present	352	96.2	97.7
Tire Failure/Inadequate	4	1.1	0.6
Defective Brakes	2	0.5	0.5
Lighting Defect	0	0.0	0.3
Other	8	2.2	0.9
TOTAL Number of Tractor-Trailers	366	100.0	

OBSERVATIONS

Vehicular factors were involved in 3.8% of tractor-trailer casualty collisions. Vehicular factors were slightly more likely to be present in tractor-trailer collisions than in collisions involving other types of vehicles.

* Based only on those cases where vehicular factor was specified on the collison report form.

Table 7.12

CASUALTY COLLISIONS

INVOLVING TRACTOR-TRAILERS:

MONTH OF OCCURRENCE

1987

Month	N	%
January	30	7.6
February	26	6.6
March	32	8.1
April	18	4.6
May	28	7.1
June	35	8.9
July	31	7.9
August	39	9.9
September	30	7.6
October	43	10.9
November	43	10.9
December	39	9.9
TOTAL Number of Collisions	**394**	**100.0**

OBSERVATIONS

The occurrence of casualty collisions involving tractor-trailers was highest in the months of October and November. The lowest number of tractor-trailer casualty collisions occurred during February and April.

Table 7.13

CASUALTY COLLISIONS INVOLVING TRAINS

1983-1987

Number of Trains	1987	1986	1985	1984	1983
	N	N	N	N	N
Fatal	4	3	5	4	7
Non-Fatal Injury	31	22	30	33	30
TOTAL Number of Trains	**35**	**25**	**35**	**37**	**37**
Casualties*					
Number Killed	4	3	6	4	9
Number Injured	42	30	41	44	43
TOTAL Casualties	**46**	**33**	**47**	**48**	**52**

OBSERVATIONS

The number of trains involved in casualty collisions increased from 1986. The number of casualties involved in these collisions has also increased since 1986.

* This refers to the total number of people killed and injured in collisions in which a train was involved.

Table 7.14

CASUALTY COLLISIONS INVOLVING TRAINS:

MONTH OF OCCURRENCE

1987

Month	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
January	0	0.0	3	9.7	3	8.6
February	0	0.0	2	6.5	2	5.7
March	0	0.0	0	0.0	0	0.0
April	0	0.0	3	9.7	3	8.6
May	1	25.0	5	16.1	6	17.1
June	1	25.0	1	3.2	2	5.7
July	0	0.0	5	16.1	5	14.3
August	0	0.0	1	3.2	1	2.9
September	0	0.0	3	9.7	3	8.6
October	1	25.0	2	6.5	3	8.6
November	1	25.0	2	6.5	3	8.6
December	0	0.0	4	12.9	4	11.4
TOTAL Number of Collisions	4	100.0	31	100.0	35	100.0

OBSERVATIONS

The largest number of casualty collisions involving trains occurred in the month of May.

Table 7.15

CASUALTY COLLISIONS INVOLVING TRAINS:

DRIVER ACTION*

1987

Driver Action	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Driving Properly	0	0.0	2	8.0	2	6.9
Failed to Observe Traffic Control Device	2	50.0	10	40.0	12	41.4
Failed to Yield Right-of-Way	0	0.0	5	20.0	5	17.2
Unsafe Speed	0	0.0	3	12.0	3	10.3
Improper Turn	1	25.0	0	0.0	1	3.4
Other	1	25.0	5	20.0	6	20.7
TOTAL Number of Drivers	4	100.0	25	100.0	29	100.0

OBSERVATIONS

Only 6.9% of drivers involved in a train crash were driving properly. A large percentage of drivers either failed to observe the traffic control device (41.4%) or failed to yield right-of-way to the train (17.2%).

* Includes only those cases where driver action was specified on the collision report form.

PEDESTRIANS AND BICYCLISTS

PEDESTRIANS

- Pedestrian casualty collisions were fairly evenly distributed across all months of the year. January, September and December accounted for the largest number of collisions, while May experienced the least number of pedestrian crashes.

- Pedestrian casualty collisions were most likely to occur on Thursdays and Fridays and least likely to occur on Sundays.

- Pedestrian casualty collisions were most likely to occur during the evening rush-hour period.

- Drivers failed to yield the right-of-way to pedestrians in 31% of the collisions.

- The casualty rate per population was highest for pedestrians between the ages of 5 and 19.

BICYCLISTS

- Casualty collisions involving bicycles were more likely to occur between the months of May and September.

- Thursdays experienced the most casualty collisions involving bicycles. As well, the largest number of these crashes (40.9%) occurred during the evening rush-hour period.

- The majority of bicycle casualty crashes involved young people, 10-19 years of age.

- The action of the bicyclist involved contributed to nearly 68% of these casualty crashes. The most commonly cited bicyclist actions were failing to yield the right-of-way, failing to observe a traffic control device, and entering a lane when unsafe.

Table 8.1

CASUALTY COLLISIONS INVOLVING PEDESTRIANS:

MONTH OF OCCURRENCE

1987

Month of Collision	N	%
January	101	9.1
February	87	7.8
March	93	8.4
April	89	8.0
May	76	6.8
June	96	8.6
July	84	7.6
August	81	7.3
September	103	9.3
October	94	8.5
November	97	8.7
December	110	9.9
Unspecified	1	0.1
TOTAL Number of Collisions	1112	100.0

OBSERVATIONS

Pedestrian casualty collisions were fairly evenly distributed across all months of the year. January, September and December accounted for the largest number of collisions, while May experienced the least number of pedestrian crashes.

Table 8.2

CASUALTY COLLISIONS INVOLVING PEDESTRIANS:

DAY OF OCCURRENCE

1987

Day of Week	N	%
Monday	148	13.3
Tuesday	177	15.9
Wednesday	151	13.6
Thursday	201	18.1
Friday	201	18.1
Saturday	158	14.2
Sunday	76	6.8
TOTAL Number of Collisions	1112	100.0

OBSERVATIONS

Pedestrian casualty collisions were most likely to occur on Thursdays and Fridays, and least likely to occur on Sundays.

Table 8.3

CASUALTY COLLISIONS INVOLVING PEDESTRIANS:

TIME PERIOD

1987

Time Period	N	%
11:00 p.m. - 2:59 a.m.	102	9.2
3:00 a.m. - 6:59 a.m.	26	2.3
7:00 a.m. - 10:59 a.m.	153	13.8
11:00 a.m. - 2:59 p.m.	220	19.8
3:00 p.m. - 6:59 p.m.	404	36.3
7:00 p.m. - 10:59 p.m.	192	17.3
Unspecified	15	1.3
TOTAL Number of Collisions	1112	100.0

OBSERVATIONS

Pedestrian casualty collisions were most likely to occur during the evening rush-hour period from 3:00 p.m. to 6:59 p.m. These collisions were least likely to occur during the early morning hours.

Table 8.4

CASUALTY COLLISIONS INVOLVING PEDESTRIANS:

LOCATION

1987

Location	N	%
Urban	1058	95.1
Rural	54	4.9
TOTAL Number of Collisions	1112	100.0

OBSERVATIONS

The majority of pedestrian casualty collisions (95.1%) occurred in urban areas. Only 4.9% occurred in rural areas.

Table 8.5

CASUALTY COLLISIONS INVOLVING PEDESTRIANS:

DRIVER ACTION*

1987

Driver Action	N	%	Total Casualty Collisions (All Vehicle Types) %
Driving Properly	517	56.4	45.6
Failed to Yield Right of Way	284	31.0	5.2
Backed Unsafely	28	3.1	0.6
Unsafe Speed	25	2.7	6.0
Failed to Observe Traffic Control Device	24	2.6	6.4
Improper Turn	9	1.0	1.5
Ran Off Road	8	0.9	7.9
Improper Passing	7	0.8	0.8
Left Turn Across Path	6	0.7	5.1
Entered Lane When Unsafe	5	0.5	1.8
Left of Centre	3	0.3	1.6
TOTAL Number of Drivers	916	100.0	

OBSERVATIONS

In over half (56.4%) of the collisions involving pedestrians the driver action was noted as driving properly. However, compared to total casualty collisions, drivers involved in pedestrian casualty collisions were approximately six times as likely to fail to yield right of way (31.0%).

* Based only on those cases where a driver action was specified on the collision report form.

Table 8.6

AGE OF PEDESTRIAN

CASUALTIES

1987

Age in Years	Number Killed	Number Injured	Total Casualties N	Total Casualties %	Casualty Rate Per 10,000 Population* %
Under 5	6	69	75	6.1	3.6
5 - 9	1	162	163	13.2	8.8
10 - 14	3	120	123	10.0	7.2
15 - 19	4	158	162	13.1	8.9
20 - 24	6	118	124	10.0	5.8
25 - 29	4	87	91	7.4	3.7
30 - 34	7	86	93	7.5	4.0
35 - 44	5	105	110	8.9	3.2
45 - 54	6	79	85	6.9	3.9
55 - 64	7	64	71	5.8	4.0
65 and over	10	109	119	9.6	6.0
Unspecified	-	18	18	1.5	
TOTAL Number of Pedestrians	**59**	**1175**	**1234**	**100.0**	

OBSERVATIONS

The casualty rate per population was highest for pedestrians between the ages of 5 and 19. In particular, pedestrians aged 15 to 19 had the highest casualty rate. The lowest casualty rate was recorded for persons between the ages of 35 and 44. The greatest number of fatalities was in the age group 65 and over.

* Source - Based on postcensal estimate of the Alberta population by sex and age, Canada and Provinces, 1987, Statistics Canada.

PEDESTRIAN CASUALTIES
RATE PER 10,000 POPULATION
1987

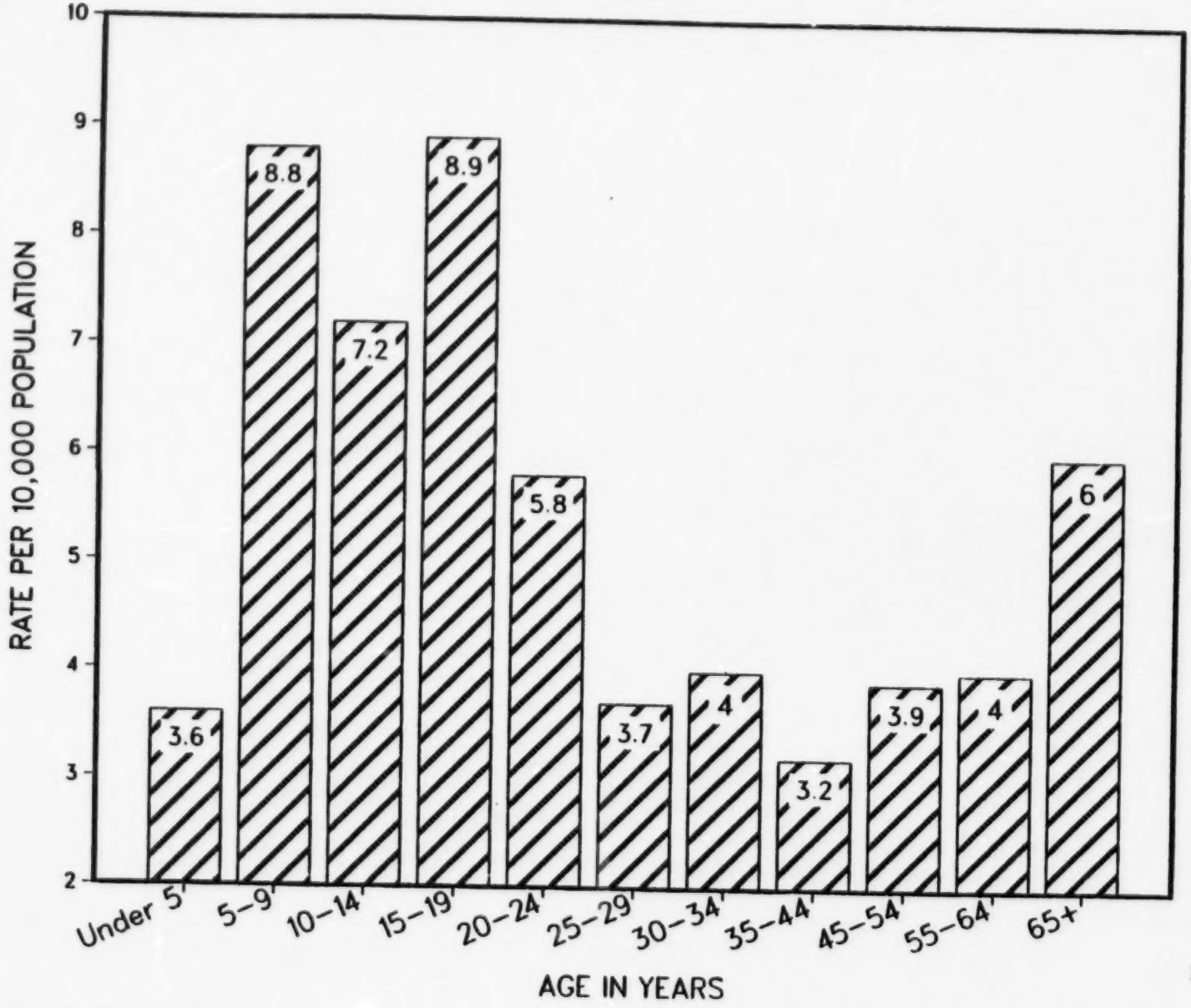


Figure 7

Table 8.7

CASUALTY COLLISIONS INVOLVING BICYCLES:

MONTH OF OCCURRENCE

1987

Month	N	%
January	5	0.7
February	11	1.5
March	7	0.9
April	65	8.8
May	124	16.8
June	131	17.7
July	121	16.4
August	82	11.1
September	91	12.3
October	54	7.3
November	35	4.7
December	14	1.9
TOTAL Number of Collisions	**740**	**100.0**

OBSERVATIONS

The majority of casualty crashes involving bicycles occurred during the warm weather months of May to September.

Table 8.8

CASUALTY COLLISIONS INVOLVING BICYCLES:

DAY OF WEEK

1987

Day of Week	N	%
Monday	119	16.1
Tuesday	114	15.4
Wednesday	104	14.1
Thursday	134	18.1
Friday	122	16.5
Saturday	70	9.5
Sunday	77	10.4
TOTAL Number of Collisions	**740**	**100.0**

OBSERVATIONS

Casualty collisions involving bicycles were more likely to occur on Thursdays.

Table 8.9

CASUALTY COLLISIONS INVOLVING BICYCLES:

TIME PERIOD

1987

Time Period	N	%
11:00 p.m. - 2:59 a.m.	20	2.7
3:00 a.m. - 6:59 a.m.	17	2.3
7:00 a.m. - 10:59 a.m.	82	11.1
11:00 a.m. - 2:59 p.m.	164	22.2
3:00 p.m. - 6:59 p.m.	303	40.9
7:00 p.m. - 10:59 p.m.	143	19.3
Unspecified	11	1.5
TOTAL Number of Collisions	**740**	**100.0**

OBSERVATIONS

The largest proportion of casualty crashes (40.9%) involving bicycles occurred over the evening rush-hour period of 3:00 p.m. - 6:59 p.m.

Table 8.10

CASUALTY COLLISIONS INVOLVING BICYCLES:

AGE AND SEX OF BICYCLIST*

1987

Age of Bicyclist	Male		Female		TOTAL	
	N	%	N	%	N	%
Under 5	8	1.1	0	0.0	8	1.1
5-9	84	11.8	25	3.5	109	15.4
10-14	143	20.2	47	6.6	190	26.8
15-19	130	18.3	43	6.1	173	24.4
20-24	58	8.2	30	4.2	88	12.4
25-29	41	5.8	15	2.1	56	7.9
30-34	21	3.0	12	1.7	33	4.7
35-44	18	2.5	5	0.7	23	3.2
45-54	12	1.7	2	0.3	14	2.0
55-64	5	0.7	2	0.3	7	1.0
65+	5	0.7	3	0.4	8	1.1
TOTAL Number of Bicyclists	525	74.0	184	26.0	709	100.0

OBSERVATIONS

The majority of bicycle casualty collisions involved male bicyclists. The 10-19 year old age group was most frequently involved in these collisions.

* Includes only bicyclists whose age and sex were specified on the collision report form.

Table 8.11

CASUALTY COLLISIONS INVOLVING BICYCLES:

ACTION OF BICYCLIST*

1987

Action of Bicyclist	Bicycle Collisions		Total Casualty Collisions (All Vehicle Types)
	N	%	%
Driving Properly	211	32.1	45.6
Failed to Observe Traffic Control Device	67	10.2	6.4
Failed to Yield Right of Way	60	9.1	5.2
Entered Lane When Unsafe	32	4.9	1.8
Left Turn Across Path	22	3.3	5.1
Left of Centre	18	2.7	1.6
Unsafe Speed	13	2.0	6.0
Improper Turn	9	1.4	1.5
Improper Passing	6	0.9	0.8
Ran Off Road	4	0.6	7.9
Followed Too Closely	4	0.6	4.9
Other	211	32.1	12.5
TOTAL Number of Bicyclists	**657**	**100.0**	

OBSERVATIONS

Improper actions on the part of the bicyclist were a contributory factor in nearly 68% of these casualty crashes. Compared to operators of other vehicles, bicyclists were more likely to fail to yield right-of-way, to fail to observe a traffic control device, or enter a lane when unsafe.

* Based only on cases where driver action was specified on the collision report form.

TRAFFIC SAFETY ISSUES

ALCOHOL INVOLVEMENT

- A total of 12.2% of drivers involved in injury crashes were judged to have consumed alcohol prior to the crash, compared to 26.6% of drivers involved in fatal collisions. As the severity of the collision increased, the involvement of alcohol dramatically increased.

- In terms of involvement per 1,000 licensed drivers, males between 18 and 21 years of age were most likely to have been drinking before the crash. There were over five times as many male drivers as female drivers who had consumed alcohol prior to the collision.

- In 1987, alcohol related casualty crashes were most likely to have occurred in May, August and October, on Saturday, and between 11:00 p.m. and 2:59 a.m.

- Figure 8 provides a graphic representation of the involvement of drinking drivers in casualty collisions over the five years, 1983-1987.

RESTRAINT USE

- Use of seat belts became mandatory in Alberta on July 1, 1987.

- Unrestrained occupant casualties were more likely to be young adults, 16 - 19 years of age.

- It should be noted that the collision report form only captures restraint use information for people killed or injured in a collision. The form does not collect restraint use information for individuals involved in a collision who were not killed or injured.

Table 9.1

CONDITION OF DRIVERS IN CASUALTY COLLISIONS*

1987

Condition of Driver	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Drivers in Casualty Collisions N	Total Drivers in Casualty Collisions %
Normal	384	71.9	17134	86.4	17518	86.0
Had Been Drinking	88	16.5	1495	7.5	1583	7.8
Alcohol Impaired	54	10.1	921	4.7	975	4.8
TOTAL Alcohol Involvement	**142**	**26.6**	**2416**	**12.2**	**2558**	**12.6**
Other	8	1.5	275	1.4	283	1.4
TOTAL Number of Drivers	**534**	**100.0**	**19825**	**100.0**	**20359**	**100.0**

OBSERVATIONS

Of drivers involved in injury collisions, 12.2% had consumed alcohol before the crash, compared to 26.6% in fatal collisions. As the severity of the collision increased, the involvement of alcohol dramatically increased. Overall, 12.6% of drivers involved in casualty collisions were judged to have consumed alcohol before the crash.

* Based only on cases where driver condition was specified on the collision report form.

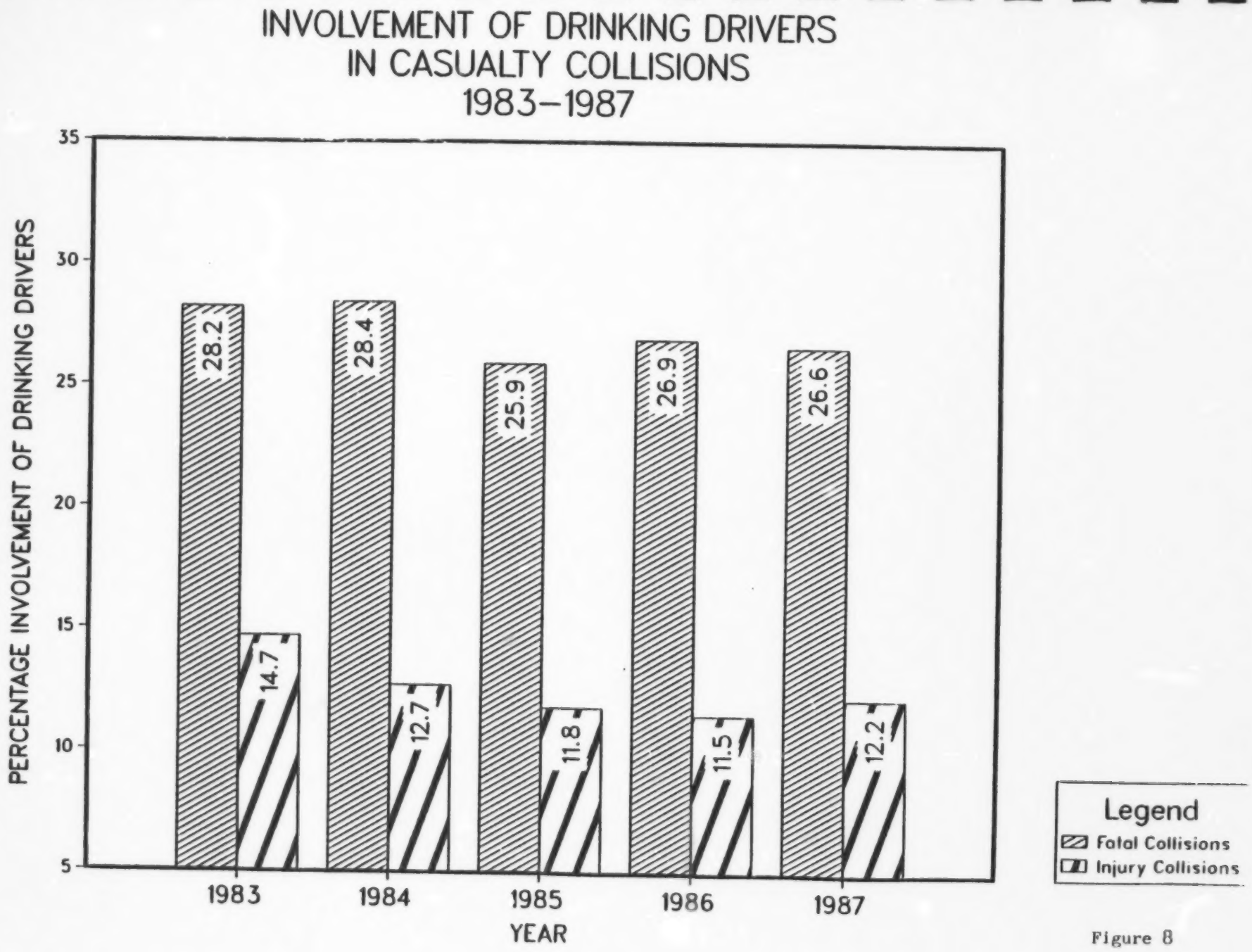

INVOLVEMENT OF DRINKING DRIVERS
IN CASUALTY COLLISIONS
1983–1987
PERCENTAGE INVOLVEMENT OF DRINKING DRIVERS
35
30
25
20
15
10
5
28.2
14.7
28.4
12.7
25.9
11.8
26.9
11.5
26.6
12.2
1983
1984
1985
1986
1987
YEAR
Legend
Fatal Collisions
Injury Collisions

Figure 8

DRIVER CONDITION IN CASUALTY COLLISIONS
1987

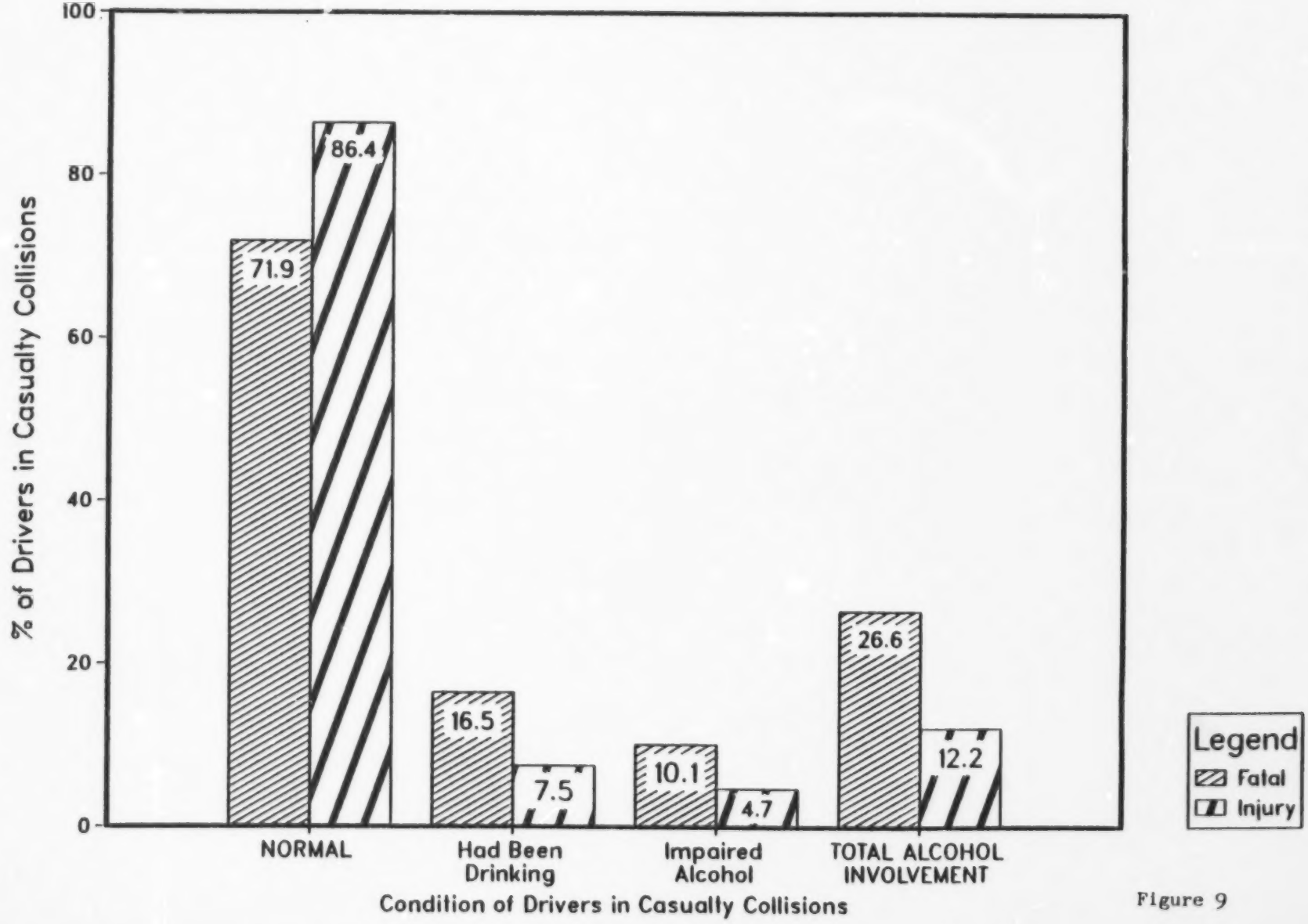


Figure 9

Table 9.2

ALCOHOL-INVOLVED CASUALTY COLLISIONS:

AGE AND SEX OF DRINKING DRIVERS*

1987

Age in Years	Male N	Male %	Male Per 1000** Licensed Drivers	Female N	Female %	Female Per 1000** Licensed Drivers	Total N	Total %	Total Per 1000** Licensed Drivers
Under 16	6	0.2	0.4	11	0.4	0.9	17	0.7	0.6
16 - 17	110	4.3	3.4	32	1.3	1.2	142	5.6	2.4
18 - 19	267	10.6	7.1	38	1.5	1.2	305	12.1	4.3
20 - 21	244	9.6	5.9	47	1.9	1.3	291	11.5	3.7
22 - 24	337	13.3	4.4	54	2.1	0.8	391	15.5	2.7
25 - 29	421	16.6	2.8	68	2.7	0.5	489	19.3	1.7
30 - 34	250	9.9	1.7	62	2.5	0.5	312	12.3	1.2
35 - 44	289	11.4	1.4	47	1.9	0.3	336	13.3	0.9
45 - 54	110	4.3	0.9	16	0.6	0.2	126	5.0	0.6
55 - 64	72	2.8	0.8	5	0.2	0.1	77	3.0	0.5
65 and over	27	1.1	0.4	4	0.2	0.1	31	1.2	0.3
Unspecified	11	0.4		1	0.0		12	0.5	
TOTAL Number of Drivers	2144	84.8		385	15.2		2529	100.0	

OBSERVATIONS

Of those collision-involved drivers who had consumed alcohol, there were over 5 times as many male drivers as female drivers. The majority were male drivers under the age of 30. In terms of involvement per 1,000 licensed drivers, males 18-21 years of age are more likely to have consumed alcohol prior to a casualty collision than any other age group. After the age of 30, alcohol involvement decreased for both male and female drivers.

* Includes only drinking drivers whose sex was specified on the collision report form. Drinking drivers include those indicated on the collision report form as having been drinking prior to the crash and those who were alcohol-impaired at the time of the crash. Whether or not the driver was actually charged is not taken into consideration by the collision report form.

** Source: Alberta Solicitor General - Motor Vehicles Division. Operator Statistics, December 31, 1987.

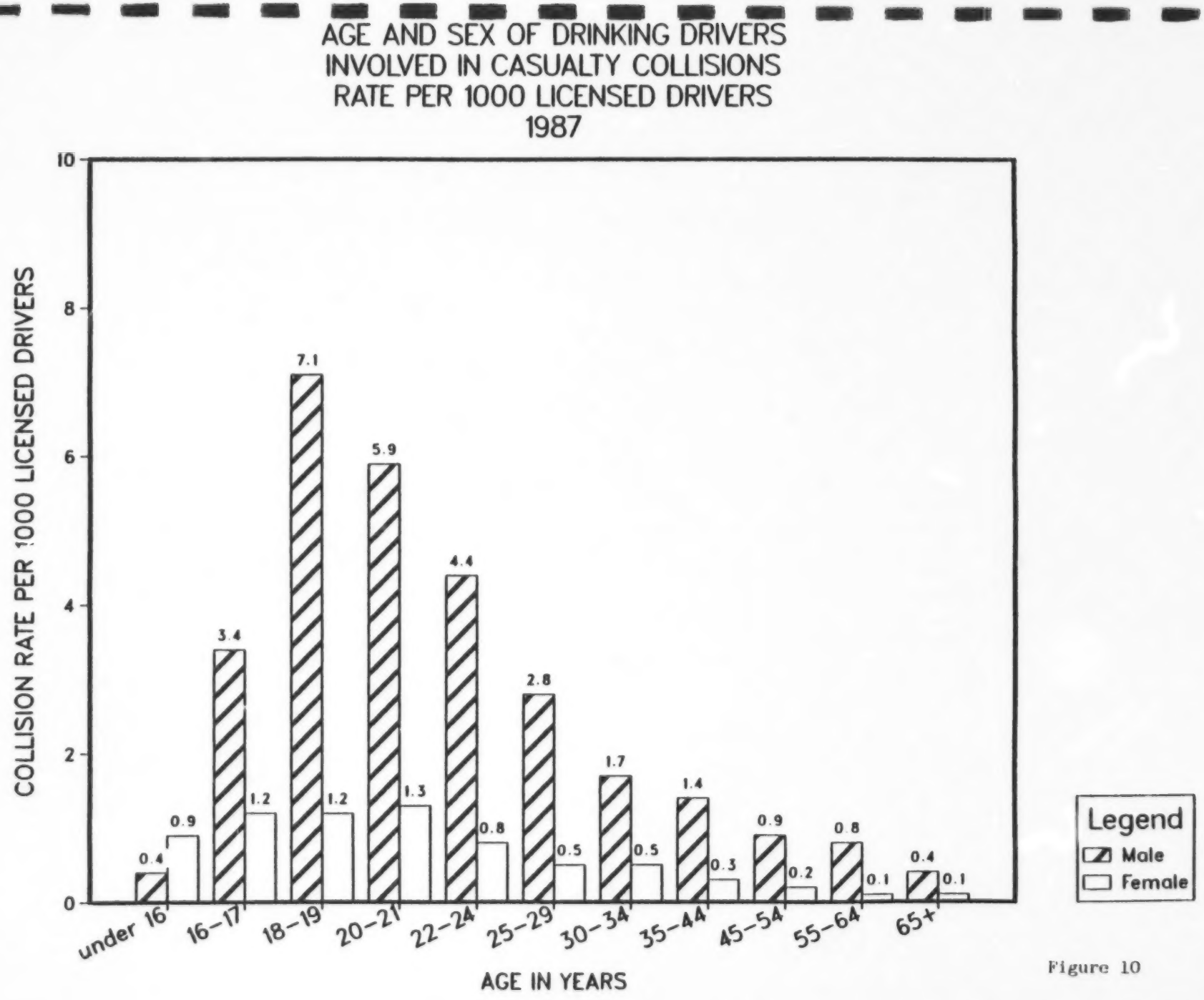

AGE AND SEX OF DRINKING DRIVERS
INVOLVED IN CASUALTY COLLISIONS
RATE PER 1000 LICENSED DRIVERS
1987
COLLISION RATE PER 1000 LICENSED DRIVERS
10
8
6
4
2
0
0.4
0.9
3.4
1.2
7.1
1.2
5.9
1.3
4.4
0.8
2.8
0.5
1.7
0.5
1.4
0.3
0.9
0.2
0.8
0.1
0.4
0.1
under 16
16-17
18-19
20-21
22-24
25-29
30-34
35-44
45-54
55-64
65+
AGE IN YEARS
Legend
Male
Female

Figure 10

Table 9.3

ALCOHOL-INVOLVED CASUALTY COLLISIONS:

MONTH OF OCCURRENCE

1987

Month	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
January	7	5.3	152	6.6	159	6.5
February	4	3.0	171	7.4	175	7.1
March	11	8.3	178	7.7	189	7.7
April	10	7.5	169	7.3	179	7.3
May	15	11.3	218	9.4	233	9.5
June	17	12.8	208	9.0	225	9.2
July	9	6.8	216	9.3	225	9.2
August	11	8.3	219	9.4	230	9.4
September	11	8.3	199	8.6	210	8.6
October	14	10.5	216	9.3	230	9.4
November	16	12.0	199	8.6	215	8.8
December	8	6.0	175	7.5	183	7.5
TOTAL Number of Collisions	133	100.0	2320	100.0	2453	100.0

OBSERVATIONS

The months of May, August and October accounted for the largest proportion of alcohol-involved casualty collisions. The months of January, February and April accounted for the smallest proportion of alcohol-involved casualty collisions.

Table 9.4

ALCOHOL-INVOLVED CASUALTY COLLISIONS:

DAY OF WEEK

1987

Day of Week	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Monday	12	9.0	148	6.4	160	6.5
Tuesday	9	6.8	222	9.6	231	9.4
Wednesday	12	9.0	252	10.9	264	10.8
Thursday	18	13.5	295	12.7	313	12.8
Friday	23	17.3	382	16.5	405	16.5
Saturday	31	23.3	623	26.9	654	26.7
Sunday	28	21.1	398	17.2	426	17.4
TOTAL Number of Collisions	133	100.0	2320	100.0	2453	100.0

OBSERVATIONS

The highest number of alcohol-involved fatal (23.3%) and injury (26.9%) collisions occurred on Saturdays. The smallest number of alcohol-involved casualty collisions occurred on Mondays.

Table 9.5

ALCOHOL-INVOLVED CASUALTY COLLISIONS:

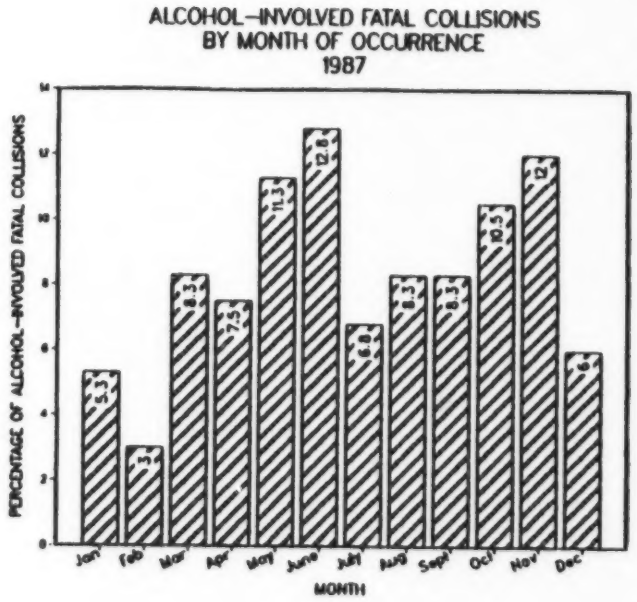
TIME OF OCCURRENCE

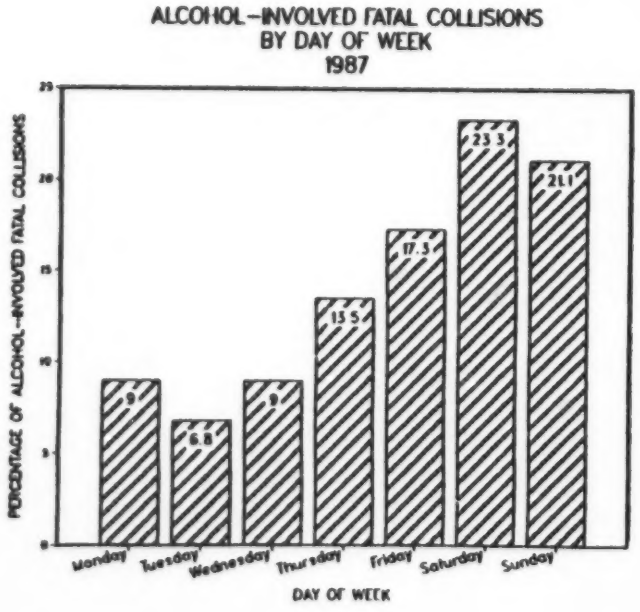
1987

Time Period	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
11:00 p.m. - 2:59 a.m.	33	24.8	736	31.7	769	31.3
3:00 a.m. - 6:59 a.m.	25	18.8	377	16.3	402	16.4
7:00 a.m. - 10:59 a.m.	7	5.3	110	4.7	117	4.8
11:00 a.m. - 2:59 p.m.	7	5.3	126	5.4	133	5.4
3:00 p.m. - 6:59 p.m.	31	23.3	340	14.7	371	15.1
7:00 p.m. - 10:59 p.m.	27	20.3	570	24.6	597	24.3
Unspecified	3	2.3	61	2.6	64	2.6
TOTAL Number of Collisions	133	100.0	2320	100.0	2453	100.0

OBSERVATIONS

The late night/early morning time period (11:00 p.m. - 2:59 a.m.) was most likely to record alcohol-involved casualty collisions (31.3%). The morning hours (7:00 a.m. - 10:59 a.m.) were least likely to record alcohol-involved casualty crashes (4.8%).


ALCOHOL–INVOLVED FATAL COLLISIONS
BY MONTH OF OCCURRENCE
1987
PERCENTAGE OF ALCOHOL–INVOLVED FATAL COLLISIONS
5.3
3
8.3
7.5
11.3
12.8
6.8
8.3
8.3
10.5
12
6
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec
MONTH


ALCOHOL–INVOLVED FATAL COLLISIONS
BY DAY OF WEEK
1987
PERCENTAGE OF ALCOHOL–INVOLVED FATAL COLLISIONS
9
6.8
9
13.5
17.3
23.3
21.1
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
DAY OF WEEK

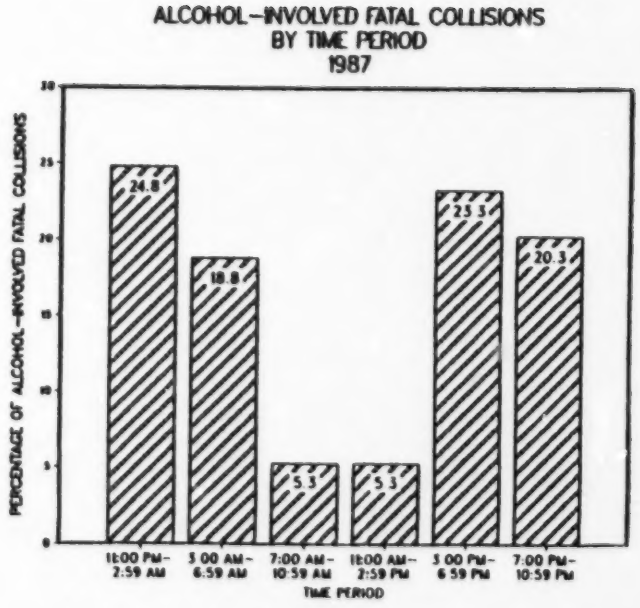

ALCOHOL–INVOLVED FATAL COLLISIONS
BY TIME PERIOD
1987
PERCENTAGE OF ALCOHOL–INVOLVED FATAL COLLISIONS
24.8
18.8
5.3
5.3
23.3
20.3
11:00 PM–
2:59 AM
3:00 AM–
6:59 AM
7:00 AM–
10:59 AM
11:00 AM–
2:59 PM
3:00 PM–
6:59 PM
7:00 PM–
10:59 PM
TIME PERIOD

Figure 11

Table 9.6

RESTRAINT NOT USED:

AGE OF OCCUPANT CASUALTIES

1987

Age in Years	Percent NOT Using Restraints
Under 5	43.7
5-9	49.7
10-15	56.8
16-17	60.5
18-19	60.7
20-21	58.8
22-24	53.6
25-29	52.6
30-34	47.6
35-44	43.9
45-54	41.5
55-64	44.4
65+	42.3
Overall Percent NOT Using Restraints	51.4

OBSERVATIONS

Unrestrained occupant casualties were more likely to be young adults, 16-19 years of age. 51.4% of occupant casualties were not wearing a seatbelt at the time of the crash.

NOTE: Includes only driver and passenger casualties (killed or injured) where age and use of restraint was specified on the collision report form.

RESTRAINT NOT USED:
AGE OF OCCUPANT CASUALTIES
1987

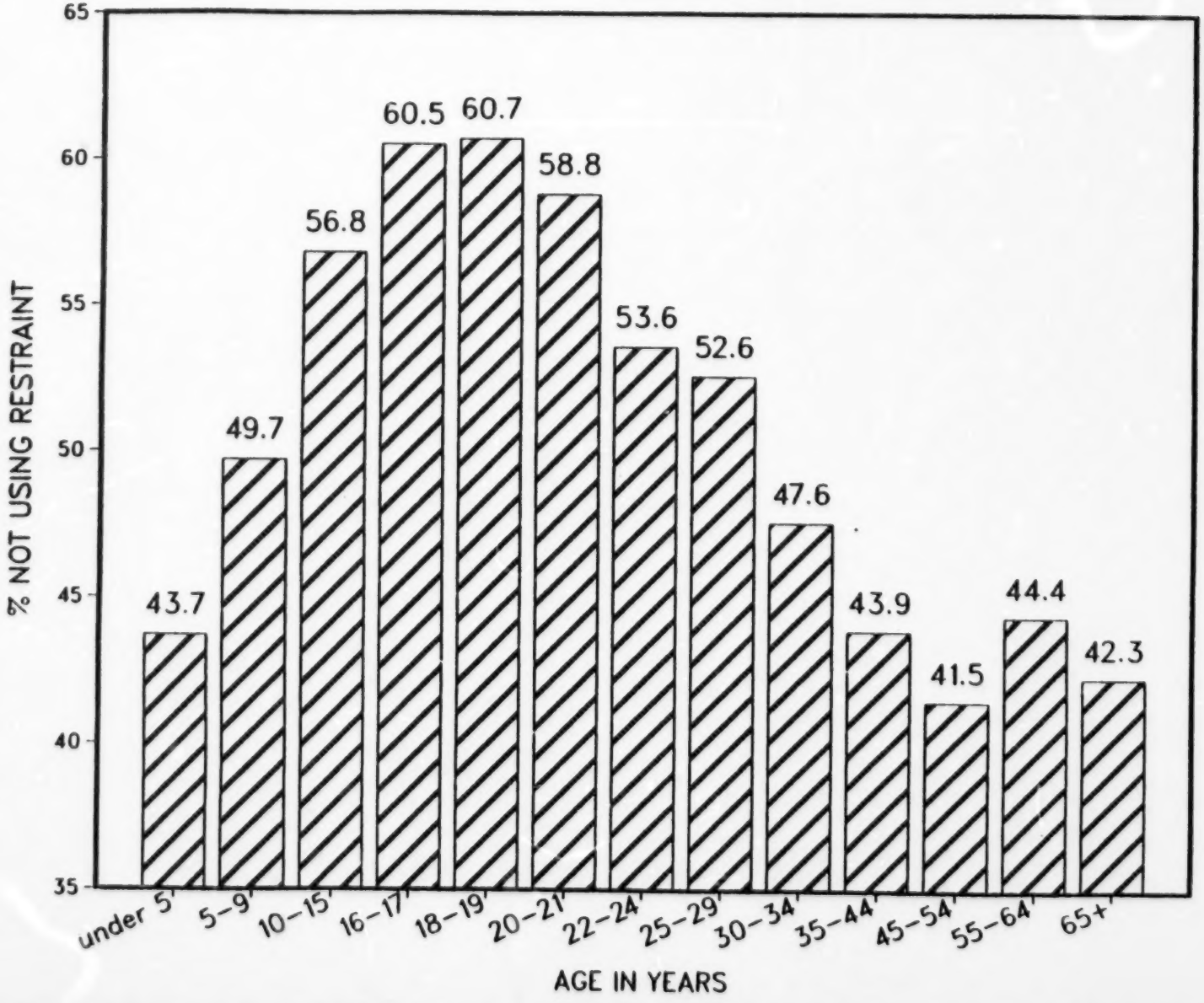


Figure 12